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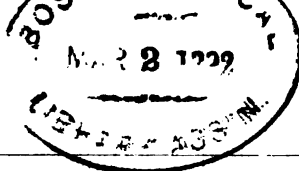
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—The—

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*A BI-MONTHLY JOURNAL OF MEDICINE,  
HUMAN AND COMPARATIVE.*

THE JOURNAL OF THE IOWA STATE MEDICAL SOCIETY.

EDITED BY

WOODS HUTCHINSON, A. M., M. D.

ASSOCIATES:

L. H. PAMMEL, B. AGR.

S. STEWART, M. D., D. V. M.

JUNE, 1891.

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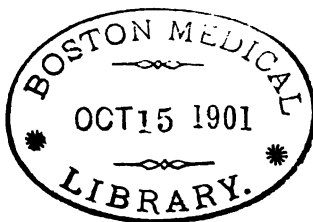
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THE JOURNAL OF  
THE IOWA STATE MEDICAL SOCIETY.

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JUNE, 1891.

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## THE PRESIDENT'S ADDRESS.

W. D. MIDDLETON, A. M., M. D., DAVENPORT.

*Ladies and Gentlemen of the Iowa State Medical Society:*

Occupying, by your suffrages, the position of your president at this meeting, I am required to address you, presumably on "the state of the country" (medical), during my term of office.

You have seen fit, however, before my time, to divide our country here into the various "sections," you know, and since the chairman of each will address himself to the unfolding before you of all matters pertaining to his special "portfolio," it would be sadly unwise for me to attempt that sort of general review. A very few points, therefore, seem to me to be reasonably within my jurisdiction, and to them, for a few minutes only, I will call your attention.

There probably never was a time in the history of any advancing profession when an enthusiastic follower thereof might not have found himself thoroughly imbued with the idea that the particular point in space occupied by his calling at his time was, from a professional standpoint, if not a *pinnacle* in the professional landscape, at least rapidly rising ground. And every one of us has often felt encouraged by some such notion as he went about his work from day to day.

And most of us could have found ourselves able to sympathize with the medical worker of Jenner's time if *he* had loudly pro-

claimed the dawn of vaccination as a pinnacle, and the event of its introduction as an *era* in his chosen calling. Indeed we all do, this minute, still so regard it with him. Precisely such a time—yea, a time of infinitely-greater promise—does it seem to me has just dawned on our calling, and though I must expect much dissent among you from my belief on this point, its herald is the strange Paraboloid or Tuberculin of Robert Koch. And here I would not be understood as claiming that this special substance itself is to lift us to greatness, or to accomplish wonders in our attempts at cure, but it is easy to fancy large numbers of its successors, evolved by the same mysterious agencies, with effects on pathological conditions beyond our wildest dreams. A cursory glance at the steps seeming to lead up to this material reveals these facts:

That before very long a century will have elapsed since Jenner's first deliberate vaccination (for he vaccinated James Phipps on the 14th of May, 1796).

That fully aware of the underlying theory of vaccination, and sorely thirsting for equal power to confer immunity, in like manner, from all the exanthemata which they daily come in contact with, practitioners of medicine and other men of natural science let the years slip by, from that time almost to the present, without further conquest in this direction.

That while the first seventy-five years of this intervening century developed nothing, either by accident or by deduction, of benefit akin to the first addition to science, the last quarter of a century seems to fairly seethe with preparations for some momentous discovery.

That it is now scarcely twenty-five years since the spectre of spontaneous generation was finally laid, and that one can date the solid foundations of the modern germ theory of disease as late as 1870.

That we all have full appreciation of the manner in which this has affected all our working theories as they have been manipulated by Lister, by Cohnheim, by Koch, by Pasteur, and others in special fields.

That in this latter quarter of the century nearly all the schizomycetes, having pathogenic influence, have been discovered and classified, and their life history made out, and that in it are these salient facts:



That they are vegetable organisms, with the same necessities for "harmonizing with their environment" that restrict and circumscribe all other animate beings.

That their power of multiplication is something that might "stagger arithmetic," in that one cell may become many millions in twenty-four hours.

That they nearly all require oxygen, but in varying degrees, and that they may all be more or less modified by their environment and by their pabulum, which of course may not be varied without very wide limits.

That while the actual vegetable cell itself may be said to be a tender plant, in relation to temperature, a variation of a very few degrees sufficing to arrest all its vital activities, like many better known organisms it throws off spores, or resting cells, whose resistance to these variations and other perturbations is something remarkable.

For instance: of course it may be germinated at once by proper surroundings, or it may lie dormant for months and for many years; or, completely dessicated, while its natural surroundings are moist, it may be blown about by all the winds of heaven; or, while its natural temperature is somewhere near that of the mammalian body, it may be frozen for weeks and months, and has been known to resist even a temperature of  $-100^{\circ}$  C., or lower; or, on the other hand, it has been seen to germinate after the water in which it was contained had been boiled for an hour. (The high temperatures are the most destructive, but that many spores escaped the process of boiling was long the only foothold for the theory of spontaneous generation.)

Further, a general view of the subject enables me to discover that the men who were in possession of this information, who had especially the forms of these organisms clearly understood, and their behavior under certain atmospheres and with certain forms of pabulum well ascertained, were equipped for safe and speedy passage along the path that Jenner vainly tried to tread nearly a century before. He considered his vaccine matter, as you know, a "*variola vaccinae*," and he fully believed that the inoculation of the cow with variola would produce a virus attenuated by its passage through her economy that would as effectually prevent variola as a previous attack of the disease itself. He had not arrived at the deduction—so common a part of the men-

tal store of all of us to-day—that all of these diseases suffered from but once were germ-produced and conferred immunity for the future by virtue of the fact that their special pabulum in the body, once exhausted by their ephemeral existence, was never reproduced, even in a long life-time. He had never seen cultures of these germs and noticed the arrest of growth brought about by the gradual destruction of the nutrient matters in a given test-tube. These men had seen these things, and the deduction was easy, as were the subsequent steps. The first real progress was made with the germ of anthrax. This cause of splenic fever was seen to affect mammalia and not to affect birds. Its rules of life set down a temperature above  $100^{\circ}$  F. as fatal, and the blood of the birds marks seven or eight degrees above this. Pasteur found that a chilled fowl could be successfully inoculated, and he also found that when so inoculated, the disease, fully under way, could be arrested by restoring to the bird its natural warmth. He found, further, that with certain manipulations by heat and by oxygen he could produce a mild germ whose introduction into the body of an animal caused much less severe perturbation than that of the grave or unmodified disease, and yet as thoroughly consumed all the anthrax pabulum contained therein as it did. And here was the Jennerian idea scientifically brought to the aid of the sufferers from anthrax by laboratory experiment—by synthesis, as it were.

You are well aware, I know, that along this line all the attempts at investigation and cure of these diseases have been made ; that, given a certain microbe as causative of any disorder, his characteristics have been fully studied and his life history clearly mapped out, always with a view to this same subtle modification of his virulence by *attenuation*. And in all this, as you know, we all have constantly seen a brilliant future for the profession in true Prophylaxis.

These are the lines of work that caused the elder Flint to say in almost his last writings :

Looking into the future in the light of recent discoveries it does not seem impossible that a time may come when the cause of every infectious disease will be known ; when all such diseases will be preventible, or readily curable ; when protection can be afforded against all diseases such as scarlet fever, measles, yellow fever, whooping-cough, etc., in which an attack confers immunity from subsequent contagion ; when, in short, no constitutional disease will be incurable, and such scourges as epidemics be unknown.

And in truth the advances may be almost miraculous along such lines. Inoculation with attenuated virus may become as common for all the other microbic diseases as it now is for variola, and cases of these ailments so be rendered as great a rarity as those of small-pox are to-day. Yea, it is not without the bounds of possibility that such disorders might finally become extinct from simple lack of fuel for their "ineffectual fires."

But, as I take it, it is an entirely different, if not new, line of attack that the Paraboloid approaches the stronghold of the germ-produced Tuberculosis. This substance is not an attenuation ; it bears in its composition no germ, modified or unmodified, unless by accidental contact, and it sustains only about the same relation to the germ (though the simile won't bear straining) that honey does to the bee or coral to the actinozoa which produce it ; it is a Ptomaine.

Koch does not publish his method of manufacture, probably for very good reason, and indeed he has been forced out of his usual cautious mode of progress far enough already, in that his product has been scattered among many hands less skillful in experiment than his would have been ; but "contraband sources of information" probably give us an approximation to the truth when they describe his process as being carried on in an incubator, from the upper part of which the *product* of tubercle-bacilli-change in gelatine is dialyzed into a lower compartment, and it is probably this dialyzed material that we know as the Lymph.

Now of the Ptomaines I will recall to your minds one or two salient points you well know. First, that they are generally exceedingly subtle organic poisons, of alkaloidal nature, probably existing in great numbers, from the effects of various microbes upon organic material, and perhaps the best known, or at least the most spoken of, are Tyrotoxicon, the cheese and milk-poison, and Sepsin, the poison which we all strive to exclude from wounds. Second, that they, the product of the life of various micro-organisms, are to the organisms themselves poison, and limit the extent of their action. The yeast-plant is often used in illustration of this latter fact, and points in its so-called catalytic action are undoubtedly parallels. This organism, as you know, flourishes in a saccharine solution, and the effect of its life-work is the change of sugar into alcohol and carbon dioxide. But it does not flourish indefinitely, neither to the limit of its

pabulum—the sugar—in all instances. For the moment that the alcohol (its Ptomaine, so to speak) reaches a certain percentage of the entire liquid (16 % is about the figure), all growth of the organisms is arrested. It is more than surmised that precisely this thing happens in the growth of all bacteria in the animal economy, and it is true certainly of cultures in the laboratory whose behavior is under constant supervision. Now, precisely as the alcohol arrests further growth of the *Torula*, so does this Tuberculin of Koch's stay the march of the bacillus of consumption, and it is strikingly suggestive of the awful power of these substances in a toxic direction that a milligram by injection produces serious perturbation of the entire human body.

Let us waive, for this time, all further discussion of the *modus operandi* of the lymph—all questioning as to why the necrotic phenomena, or why Virchow's "mobilization" of the bacilli, and all argument as to its real virtues, pro or con; the sole object of this was to call attention to the difference between this and the practice of attenuation of virus—to show that it was not a *step* but a *leap* forward, and that it seemed to me to mark an era in professional endeavor. To follow, the idea a short distance one sees that no matter how effectual the attenuation procedure, there would always remain some disorders against which it would be simply asinine to seek systematic prevention in such a manner. One of our most common microbic disorders, for instance, is typhoid fever, but its proper prevention is so manifestly in hygienic directions of the plainest sort that the English sanitarian says some one ought to be hanged whenever a case develops. You would scarcely inculcate the inoculation of children against such a disorder. But let it once lay hold on an individual, and the bacillus typhosus begins its characteristic operations on the patches of Peyer. You all know the many and discouraging days and weeks that follow the poisoning of nerve, till, with mouth open, and with eyes that have no speculation in them, your patient lies reminding you of Tennyson's "Deserted House," where—

Life and thought have gone away  
Side by side,  
Leaving door and windows wide,  
Careless tenants they.

And you know that *cure* would be welcome, since *prevention* had

failed. Why is it beyond the probable that the Ptomaine of these microbes, judiciously injected, should arrest *instantly* the further destruction of tissue in the bowel and cut short the disease? Why is it so, necessarily, in typhus, in cholera, in yellow fever, or indeed in any of the long list of proven enthetic disorders, and the list grows daily longer? It is *not*. Therefore, I opine that no matter what the fate of *Tuberculin* upon careful trial of its merits, the underlying principles of its action are a wonderful discovery, and their elaboration will move us far in advance.

Closely connected with this train of thought is the fact that the American Medical Association, at its last meeting, appointed a committee to report next month upon the feasibility and mode of celebrating the centennial of the discovery of vaccination, now close at hand. I would suggest that it would strengthen the hands of that committee should you, as a body, indorse the plan of such a celebration if it really meets with your approval.

Regarding the "betterment" of our Transactions, which seems a reasonable object of effort, a former president, at this moment active with us, called to your attention very forcibly the great benefit to be derived from a collection of cases for publication, leaving the collection of such cases to the chairmen of the various sections, and asking members to contribute actual observations of disease in simple notes of cases, in place of more elaborate work. There can be no sort of doubt that the plan would insure much more valuable material.

Another of your presidents, of the salt of the earth, suggested prize-giving for original work as a valuable means of eliciting better material and enhancing the interest of our publications to ourselves and our neighbors, and this plan I would again call to your attention.

Both of them are always met by financial objections from practical members, and there is, of course, force to all such objections. The following suggested plan might prove of merit in overcoming such hindrances :

The Indiana State Society organization resembles very closely the organization of our Masonic Grand Lodge, with the details of which most of you are familiar. Every member of a County Society—the society owing allegiance to and being really a part of the State organization—is virtually a member of the State body.

He pays his dues to the County Society, which are turned over by the local treasurer to the treasurer of the State organization, and he receives his volume of Transactions yearly, whether he ever attends the meetings of the State body or not.

You may see at once many objections to this plan, but as stated in the beginning of the paragraph, from a financial point of view it has many recommendations.

I am credibly informed that there are 2,800 regular physicians in this State, half of whom are members of local societies, and about 400 of whom are members here. The plan would, therefore, add nearly 1,000 men to our ranks; no mean addition to any ranks in financial or other trouble. Add to this the fact that we have a fluctuating figure of membership which would be, under the supposed plan, more stable, and the further fact that it might encourage the further formation of local organizations till the entire 2,800 came into allegiance—at which point the notion becomes decidedly rainbow-colored. The change would, of course, necessitate fundamental constitutional action, but in all probability there would be little difficulty in the operations, after being fairly started.

Further, regarding these Transactions, I know that you have decided against the journal method of their publication at a former meeting, and I know also that personally I have a predilection for the book form of so doing. But it has always seemed to me that Iowa ought to furnish sufficient pabulum for a good, live journal, in which we might all feel an interest beyond that accorded foreign matter of the same kind, and in which local professional matters, even gossip, might find their natural place. In such a periodical, whose binding would then commend itself to us from a *historical* point of view, I have always fancied our work might have full justice, and if such a venture is again made among us, which I am informed is contemplated, it seems to me reasonable to reopen the subject and to give an attentive ear at least to the claims of an "infant industry" whose interests might profitably be protected, and which would be a bond of union amongst us.

One more point, and I close. You notice that in Article II of your Constitution you mention, among several other "objects" of this Society, "the protection of the interests of its members," and were it not for this avowal I should feel really loath to say

what might otherwise seem to savor decidedly of trades-unionism, perchance of trusts. But I had at one time in contemplation, for material for an address, the statistics of malpractice suits in our State, and was deterred simply by the figures ninety and nine, when I thought of county and court records. And I don't imagine that, as a State, our record would be shown to be very severe in this direction. But, though never having suffered in this way myself, I have been cognizant of cruelty and injustice from these suits that would make crucifixion positively blissful by comparison; and though I can't quite see how we could formulate a course of action for a society looking towards "promoting the interests" of a member so stretched on the rack, still I can well imagine we could easily improve upon our present line of conduct, which is decidedly less like that of the Good Samaritan than of the other gentleman who passed by on the other side, and, without any idea of defeating the ends of justice, give him moral support and comfort in his adversity. A society which should be the highest embodiment of the *esprit de corps* in the State might easily find means to lend a helping hand here, in manner whose detail I shall not attempt, but which an active committee would shortly elaborate.

And now, in conclusion, begging of you in advance your overflowing charity on any shortcomings of the Chair, let us set to work with energy to improve the short time we are allowed to spend together, and may our exercises be of mutual benefit.



PROCEEDINGS OF THE FORTIETH ANNUAL SESSION  
OF  
THE IOWA STATE MEDICAL SOCIETY,

HELD AT WATERLOO, APRIL 15, 16 AND 17, 1891.

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FIRST DAY, APRIL 15.

MORNING SESSION.

The Society convened in the Knights of Pythias Hall in West Waterloo, and was called to order at ten o'clock by the President, Dr. W. D. Middleton. Opened with prayer by Rev. G. F. Holt.

Officers present—W. D. Middleton, Davenport, President ; J. L. Whitley, Osage, Second Vice President ; C. F. Darnall, West Union, Secretary ; C. S. Chase, Waterloo, Assistant Secretary ; G. R. Skinner, Cedar Rapids, Treasurer.

On motion of Dr. Geo. F. Jenkins, reading of the minutes of last meeting was omitted.

The Committee on Arrangements, by Dr. D. W. Crouse, the Chairman, announced the program of the meeting, the hours of convening, and special entertainments.

After considerable discussion, on motion, leave was granted authors to publish papers in any medium they chose, provided credit was given as having been read at this session.

In the absence of Dr. Scofield, member of the Finance Committee, the vacancy was filled by the appointment of Dr. I. S. Bigelow, of Dubuque.

Adjourned at 11:30.

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AFTERNOON SESSION.

Called to order at 2 o'clock by Dr. S. B. Chase, of Osage.

Letters and telegrams of regret were read from Drs. Peck, Emmert, Farr, McCleary, Angear and Page.

The Chair called upon the President, Dr. W. D. Middleton, who delivered the annual address (see page 1), and Drs. Gorrell, Schooler and Reynolds of Clinton were appointed a committee to consider it and report at a subsequent session.



The Chairman of Section on Practice, Dr. C. C. Griffin, not having arrived, Dr. Ward Woodbridge presented his paper, "Intestinal Diseases of Infancy and Childhood." It was referred to the Committee on Publication after having been discussed by Drs. Bigelow, Irving W. Smith, Sill, Ruth, Skinner, LaGrange, Jenkins, G. E. Crawford, J. P. Crawford and Hobson, and closed by Dr. Woodbridge.

"Some Experiences with Pulmonary Abscess" was the title of a paper read by Dr. A. C. Bergen, of Sioux City; discussed by Dr. Sill and referred.

Dr. Joel W. Smith, of Charles City, presented a paper upon "The Abuse or Misuse of Drugs," which was discussed by Drs. Schooler, Jenkins and Sill, and referred.

Dr. Woods Hutchinson read a paper entitled "Suggestions on the Nature and Causation of Eczema," which was discussed by Drs. La Grange and Hobby, and referred.

Dr. Geo. F. Jenkins presented "The Treatment of Pleuritis with Effusion," which was referred after discussion by Drs. J. P. Crawford, Maxwell, J. W. Smith, and Schooler, and closed by the author.

Dr. D. W. Finlayson not being able to be present, his paper on "Pleasant Methods of Medication" was read by title and referred to the committee.

Afternoon adjournment was had at 5:30, followed by selection of members of the Committee on Nominations, with the following result :

#### COMMITTEE ON NOMINATIONS.

- First District—T. J. Maxwell, Keokuk.
- Second District—A. W. Cantwell, Davenport.
- Third District—A. J. Hobson, Bristow.
- Fourth District—J. W. Smith, Charles City.
- Fifth District—J. S. Love, Springville.
- Sixth District—J. T. Harp, Prairie City.
- Seventh District—L. Schooler, Des Moines.
- Eighth District—T. P. Stanton, Chariton.
- Ninth District—F. M. Hiatt, Red Oak.
- Tenth District—E. J. Blair, Garner.
- Eleventh District—A. C. Bergen, Sioux City.

#### EVENING SESSION.

Called to order at 7:45 by the President.

Dr. Watson, on behalf of Dr. George Minges, read a circular letter sent by the latter to physicians, concerning expert work in microscopy, and asked the opinion of the Society concerning the action. The matter was referred to the Committee on Ethics for a subsequent report. The members of the committee being all absent, a new committee was appointed by the Chair, consisting of Drs. S. B. Chase, E. M. Reynolds, J. R. Gorrell and William Watson.

The Section on Obstetrics and Gynæcology was opened by the Chairman, Dr. J. F. McCarthy, of Dubuque, who read report of progress for the past year. The paper was referred.

Dr. Wm. Watson presented a paper upon "Meddlesome Midwifery," which was referred after discussion by Drs. S. B. Chase, Hobson, Sill. Whitmire, McCarthy, Woodbridge, Maxwell, I. W. Smith, Schooler, Dunkelberg of Frederika, Ruth, Sansom and Joel W. Smith, and closed by Dr. Watson.

Dr. J. R. Guthrie read his paper, "Operations upon the Gravid Uterus," which was referred.

Dr. J. W. La Grange presented a paper upon "The Use and Abuse of Pessaries in Uterine Displacements," which was also referred.

Adjourned at 9:45 P. M.

## SECOND DAY, APRIL 18.

### MORNING SESSION.

The Society was called to order by the President at 9:20 A. M., and opened with prayer by Rev. C. H. Purmont.

The following communication to the Society, from Dr. Woods Hutchinson, relative to journalizing the proceedings, was read and referred to a committee consisting of Drs. Schooler, Conniff and Guthrie:

WATERLOO, IOWA, April 16, 1891.

*To the Iowa State Medical Society:*

I wish to submit the following proposition to your honorable body:

For five hundred (\$500) dollars I will establish a medical journal for the publication of your Transactions and to serve as a medium of intercommunication for the profession of the State, and will furnish every member with a copy of the same for one year. Said journal to appear at Des Moines June 1, 1891, and every two months thereafter, and to consist of at least 40 pages of reading matter, or as many as may be needed to allow the Transactions to occupy one half, the remainder being original matter, State news, etc. An additional feature of the journal will be a series of short articles upon Bacteria and the Diseases of Plants, by Prof. Pammel, of the State Agricultural College, and one upon the Analogous or Communicable Diseases of Animals, by S. Stewart, M. D., D. V. M., of Council Bluffs.

Respectfully,

WOODS HUTCHINSON.

The Committee on the President's Address, through its Chairman, submitted the following report:

It affords your committee great pleasure to commend in the highest terms the scholarly and logical address delivered by its retiring President, W. D. Middleton, at the Fortieth Annual Meeting of the Iowa State Medical Society. The subject now stirring the medical profession in every land,

viz., Koch's alleged discovery, was discussed in a cautious, clear and forcible manner. The doctor was especially emphatic in suggesting very great caution by the general practitioner in the use of the lymph, as the total result of its use up to the present time was an unknown quantity. He believes, however, the investigations are in the right direction, and that the dawn can now be discerned of important results for man.

Other subjects of importance to the medical profession in Iowa were briefly discussed.

The address was able, and it was opportune. It was an evolution from the brain of a cautious and profound thinker, and we believe will aid the profession in the West to avoid the dangerous shoals of hasty generalizations. We earnestly recommend its publication in the Transactions of this Society, and in some medical journal at an early date.

J. R. GORRELL,  
ALBERT REYNOLDS,  
LEWIS SCHOOLER.

The Committee on Ethics, by Dr. S. B. Chase, Chairman, reported on the matter of Dr. Minges, simply referring him to the Code of Ethics.

Dr. Skinner advocated bringing it before the Society, saying that men who make a special study of microscopy and bacteriology should be encouraged and sustained.

Dr. Chase said the committee saw nothing unprofessional in the circular. The committee had no charges, but simply wanted advice.

After further discussion by Drs. Reynolds, Joel W. Smith, Watson and Bigelow, the committee's report was adopted.

On motion, Dr. C. S. Nieswander, representative of the MacIntosh Battery Company, was invited to deliver an address this evening, upon Electricity.

Dr. J. F. Fulton, of St. Paul, Minn., was presented to the Society, and spoke as follows:

*Mr. President, and Gentlemen of the Convention:*

I am very much obliged to Dr. Whitley, as well as the President, for this invitation. I did not come to talk, however; I simply came to listen. I have thought, however, that it would be a very good idea, and for the advantage of all the neighboring States if it were more common to appoint delegates on the part of the different State Societies to visit different meetings. One of the great objects in attending medical associations is to get the drift of thought and the exchange of ideas which we obtain in different places, and which it always appeared to me is to the advantage of all. I shall be very glad to listen to the papers and take part in whatever discussions may come up. I thank you.

Dr. George N. Kreider, of Springfield, Ill., was also presented, and addressed the Society as follows :

*Mr President :*

I have not very much to say. I have not very much of a voice to use. I am very much pleased, indeed, to meet with the Iowa State Medical Society, and to give the greetings to this Society from the Illinois State Medical Society. We are about entering upon a new plan of meeting in our own State, which I understand is under discussion in your State, of having a permanent place of meeting, beginning with this year. We have met at Springfield every alternate year, and every alternate year in Chicago. And I take pleasure in inviting all the members of the Iowa State Medical Society to attend the meeting at my home on the 18th, 19th and 20th of May. I shall be pleased to see as many of you as can come. I am also pleased to congratulate the members of this Iowa State Medical Society upon the fact that Iowa has a medical law upon her statute books, and I hope it will do as much for your State as our own has done for us. As a member of our State Board of Health I have practical knowledge of its workings, and while it has not done everything—has not driven out everybody that ought to go—yet it has done a great deal, and I am sure as a means of education it has been of service both to the public and the medical profession. When I used to practice the doctors thought it ought to do a great deal more than it actually could ; but this law, like all others, is not perfect, cannot be made perfect, cannot be made to protect the honorable practitioners as it should ; yet, as I say, it has done a great deal, and I am sure your law will do a great deal for you. I thank you, gentlemen of the convention, for your kind invitation.

Dr. Maxwell called up from the previous meeting the World's Fair resolution, and asked that a committee be appointed to consider the matter and report later. The Chair appointed as such committee Drs. Maxwell, Watson and Hornibrook.

#### SECTION ON SURGERY.

Dr. J. B. Charlton, of Clear Lake, Chairman, read his report, which was referred after having been discussed by Dr. Hornibrook.

"Appendicitis" was the title of a paper read by Dr. I. S. Bigelow, of Dubuque, which was referred after discussion by Drs. Schooler, Irving W. Smith, McCarthy, Hornibrook and Guthrie, closed by the author.

Dr. Markham's paper, "Fracture of the Cervix Femoris and Restored Use of the Limb," was read by title and discussed.

Dr. R. E. Conniff presented his paper on "Suppurative Leptomeningitis, with Report of a Case," which was received and discussed.

"A Case of Spina Bifida" was the title of a paper read by Dr. C. L. Whitmire, of Waverly, and referred after discussion by the members.

Adjourned at 12:15 P. M.

AFTERNOON SESSION.

Called to order at 2:00 by the President, and proceeded to the regular order.

Dr. H. E. W. Barnes, of Macksburg, read "A Malpractice Case," and after discussion by Drs. Waples, Clapp and Markham, it was referred.

"A Contribution to Cerebral Surgery," by Dr. J. W. Kime, of Ft. Dodge, was read by the author, who also exhibited the patient. Drs. J. W. Smith, Ruth, Robinson, Ensign, Burbank, Sill and Maxwell joined in the discussion, after which the paper was referred.

"Neurotomy and the Diseases that Lead to It," Dr. E. F. Clapp's paper, was read by title and referred.

Dr. T. J. Maxwell read "A Contribution to Cranial and Spinal Surgery," which was supplemented by a voluntary paper by Dr. C. E. Ruth, and both papers were referred.

Dr. J. M. Ball, Jr., of Waterloo, read a paper on "A Case of Orbital Tumor," which was referred after discussion by Dr. C. M. Hobby.

A voluntary paper by Dr. F. M. Hiatt, of Red Oak, upon "Aseptic Surgery," was read and referred after discussion by Dr. Clapp.

DISEASES OF MIND AND NERVOUS SYSTEM.

"Paranoia" was the subject of the paper read by the Chairman, Dr. Gershom H. Hill, of Independence. Discussion was participated in by Drs. Reynolds and Small. Paper referred.

A paper upon "The Diagnosis of Insanity," by Dr. Sara A. P. Kime, was read by title and referred.

"The Proper Care of the Chronic Insane" is the title of a paper read by Dr. F. McClelland, of Cedar Rapids, which was commented upon by Dr. Gilman, and referred.

Dr. S. B. Chase, of Osage, read "The Border Land of Insanity." Referred, after discussion by Dr. Waples.

The following resolution was offered for adoption by Dr. D. C. Brockman, of Marengo:

*Resolved*, That the Chair appoint a committee of three, whose duty it shall be to prepare and have introduced, at the next term of our Legislature, a bill looking to the equitable adjustment of alleged malpractice cases.

The resolution was adopted, and the Chair announced the committee to be Drs. L. E. Robinson of West Union, L. Schooler of Des Moines, and H. E. W. Barnes of Macksburg.

The special committee on World's Fair presented the following report, which was adopted, and the committee discharged:

*To the Officers and Members of the Iowa State Medical Society:*

The undersigned, your committee to whom the consideration of the proper collection and presentation of material designed to illustrate the *status* of the medical profession in the State of Iowa, and to aid in showing its contributions to the development of medicine and surgery, as well as hygiene and sanitary science, were referred, beg leave to report as follows: It approves of every effort to show to the world the contributions to American science, research and experiment in every branch of the profession, and believes that the rapid strides of American medicine and surgery within the last few years will impress the history of the world's medicine, and to this end we wish to encourage in any proper way the importance of a full representation by the profession of the United States, and would recommend the appointment of a committee of one from each Congressional district to act with similar committees that may be appointed by other States, to promote the above outlined object. As the selection of such a committee is a matter of great importance, we would respectfully suggest that to permit due consideration the selection be made by the present and incoming officers.

THOS. J. MAXWELL,  
EDW. HORNIBROOK,  
WM. WATSON.

The special committee upon the journal proposition submitted the following report, and recommended its adoption, which, after considerable discussion, was done :

Your committee, to whom was referred the proposition of Dr. Woods Hutchinson to journalize the Transactions of this Society, report favorably upon the proposition as amended.

LEWIS SCHOOLER,  
R. E. CONNIFF,  
J. R. GUTHRIE.

Dr. L. Schooler, Chairman of the Committee on Nominations, read the following report, which was received, and on motion was made special order for adoption to-morrow morning :

## NOMINATIONS.

Your committee beg to present the following report, and recommend its adoption :

*President*—Geo. F. Jenkins, Keokuk.

*First Vice President*—C. M. Hobby, Iowa City.

*Second Vice President*—J. B. Charlton, Clear Lake.

*Secretary*—C. F. Darnall, West Union.

*Assistant Secretary*—J. W. Cokenower, Des Moines.

*Treasurer*—G. R. Skinner, Cedar Rapids.

*Committee on Arrangements*—Lewis Schooler (Chairman), J. T. Priestley, J. F. Kennedy, Des Moines ; J. F. Harp, Prairie City ; D. S. Fairchild, Ames.

*Committee on Publication*—T. J. Maxwell, Keokuk ; I. S. Bigelow, Dubuque ; Joel W. Smith, Charles City ; Secretary and Treasurer *ex-officio*.

*Committee on Ethics*—W. D. Middleton (Chairman), Davenport; Wm. Watson, Dubuque; I. P. Brubaker, Des Moines; A. A. Deering, Boone; J. R. Gorrell, Newton.

*Committee on Revision of Constitution*—C. M. Hobby (Chairman), Iowa City; H. G. Ristine, Ft. Dodge; D. W. Smouse, Des Moines.

*Committee on Necrology*—First district, C. H. Frizelle, Viele; Second dist., C. E. Ruth, Muscatine; Third dist., J. R. Guthrie, Dubuque; Fourth dist., J. L. Whitley, Osage; Fifth dist., J. M. Ristine, Cedar Rapids; Sixth dist., E. W. Clark, Grinnell; Seventh dist., Woods Hutchinson, Des Moines; Eighth dist., T. P. Stanton, Chariton; Ninth dist., F. M. Hiatt, Red Oak; Tenth dist., H. R. Irish, Forest City; Eleventh dist., A. C. Bergen, Sioux City.

*Delegates to American Medical Association*—Geo. F. Jenkins, J. A. Scroggs, J. C. Hughes, Keokuk; W. T. Eckley, Ft. Madison; W. F. Peck, Davenport; L. W. Littig, Iowa City; G. H. Hill, Independence; H. W. Brown, Waterloo; J. W. Smith, Charles City; C. F. Darnall, West Union; S. D. Brainard, Stacyville; S. B. Chase, Osage; G. R. Skinner, G. E. Crawford, Cedar Rapids; S. S. Spicer, Blainstown; J. E. Stanton, W. H. Gibbon, Chariton; F. W. Porterfield, Atlantic; E. J. Blair, Garner; J. B. Tedrow, Williams; E. L. Bower, Guthrie Center; Charles McAllister, Spencer.

*Place of Meeting in 1892*—Des Moines.

Dr. F. M. Hiatt, of Red Oak, is constituted a delegate to the Montana State Society.

L. SCHOOLER, *President*.

T. P. STANTON, *Secretary*.

Adjourned at 6 P. M.

There being no regular session in the evening, many availed themselves of hearing the lecture on Electricity, by Prof. Nieswander. At 9 o'clock a magnificent reception was tendered by the physicians and ladies of Waterloo at the residence of Dr. Richards, on the East Side. It was a most enjoyable occasion.

### THIRD DAY, APRIL 17.

#### MORNING SESSION.

Called to order at 9 o'clock by the President. Opened with prayer by Rev. Eugene May.

Dr. J. F. Kennedy introduced the following to amend the Constitution :

*Resolved*, That Article IX of the Constitution of the Iowa State Medical Society be so amended as to strike out as special sections the Committees on Ophthalmology and Otolgoy, Materia Medica, Hygiene, State Medicine, and Diseases of the Mind and Nervous System.

Ordered placed on file, to be called up for action next year.

Dr. D. W. Crouse, from the Committee on Arrangements, gave in bill of receipts and expenditures, as follows :

To amount from exhibitors . . . . .	\$50.00
By amount paid hall rent . . . . .	\$25.00
chairs and cartage . . . . .	5.00
use of Y. M. C. A. hall for exhibitors . . . . .	10.00
Balance on hand, paid Treasurer . . . . .	10.00
Total . . . . .	\$50.00

A bill for \$7.50 was allowed for printing.

Dr. E. Hornibrook, Chairman of the Committee on Publication, submitted the following report, which was adopted and the committee discharged:

WATERLOO, Iowa, April 17, 1891.

*To the Iowa State Medical Society:*

The committee reports that the results of their labors are shown in the published volume of Transactions.

#### EXPENDITURES.

Printing and binding . . . . .	\$372.84
Express and mailing . . . . .	45.34
Total . . . . .	\$418.18

The proof-reading was done by the Secretary, Dr. Darnall, for which service, and for indexing the volume, we recommend that he be paid one hundred dollars (\$100.00).

EDW. HORNIBROOK,  
J. F. KENNEDY,  
GEO. F. JENKINS,  
G. R. SKINNER,

*Committee on Publication.*

An invitation to attend the annual session of the Missouri Valley Medical Society, in October, was extended to all by the Secretary, Dr. F. S. Thomas, of Council Bluffs.

The Chair appointed as Trustees, terms expiring in 1894, Drs. Hornibrook and Moorehead. The terms of Drs. Gorrell and Everett expire in 1892; of Drs. S. B. Chase and F. M. Everett in 1893.

The report of the Committee on Nominations, as made yesterday, was adopted, and officers as recommended declared duly elected for the ensuing year.

The outgoing President, Dr. W. D. Middleton, appointed Drs. Robinson, Gilman and Pierce a committee to induct the new President, Dr. Geo. F. Jenkins, into office. He was introduced by Dr. Gilman. Dr. Middleton spoke as follows:

Before resigning my position I should like to say that it was with a good deal of trepidation that I assumed the duties here, but that there has been a certain pervading spirit of kindness and friendliness that has come up from the body of the house that has made my duty very light and pleasant, and the session one of the pleasant things in my memory, for the which I want to thank you all heartily; and I now take very great pleasure in introducing the next President, whose selection has done you very great honor.



President-elect Jenkins said :

*Mr. President and Ladies and Gentlemen of the Iowa State Medical Society:*

I feel profoundly thankful to the Association for the honor they have conferred upon me. I appreciate this honor, as any man should, to be elevated to any position so important as that of President of the Iowa State Medical Society—a position which has been held by such honorable and distinguished men in the past. I appreciate it the more, that the men who contested my election so strongly last year—the men who preferred another to me—and did it with the very best of intention to me—without solicitation, have unanimously and very cordially elevated me to this position of honor at this time. This may seem like a small matter, but it makes the position all the more coveted by me. If I can, in the year that is to come, fill this position with the same degree of honor, show the same spirit of fairness and justice that has been shown by our worthy and esteemed retiring President, I shall feel very greatly satisfied. I want to thank you all again very cordially for this position of honor. I want to ask your indulgence and forbearance and assistance, and I hope that with these I may be able to do all in my power to promote the harmony, enhance the interests and insure success at the next meeting of our Society, which we all so much love. Gentlemen, I thank you, and am now ready for business. for business.

Regular order was called at 9:35, being a continuation of Section on Diseases of the Mind and Nervous System, and opened with Dr. Gilman's paper upon "Iowa's Duty to the Insane," which was discussed by Drs. Moorehead, Hill and Hornibrook. The latter gentleman moved that the paper be referred to the State Board of Health, with the recommendation that it be published and distributed throughout the State, which sentiment prevailed.

Dr. I. W. Smith suggested, in this connection, that each member of the Society assist in any possible way to further the interests of the unfortunate class mentioned in the paper by aiding to secure additional and suitable legislation toward the fulfillment of the State's duty.

Dr. Hornibrook read his paper entitled "Neurasthenia," which, after discussion by Drs. Hill and Small, was referred.

The paper entitled "Morbid Longings, their Causes and Results," was read by the author, Dr F. S. Thomas, and referred.

"Epilepsy and the Need of an Epileptic Hospital" was read by Dr. P. J. Farnsworth and referred.

The Section on State Medicine and Hygiene reported through its Chairman, Dr. A. W. Cantwell. Paper referred.

Dr. J. F. Kennedy read his paper on "Croup and Diphtheria in their Relation to the Public Health," which was referred after discussion by Drs. Gilman, Brannsworth, Thomas and Hornibrook.

Dr. C. S. Chase introduced the following, which prevailed :

*Resolved*, That hereafter the salary of our Treasurer be fixed at one hundred dollars per annum, and that of the Secretary at one hundred and fifty dollars per annum.

On motion, the sum of \$100 was allowed the Secretary for salary the past year, and \$50 salary and \$50 extra compensation to the Treasurer.

The paper on "Medical Legislation," by Dr. J. M. Shaffer, was read by title and referred.

Dr. Oscar Burbank's paper on "What shall We Do to be Saved?" elicited discussion by Drs. Ball, Gilman, C. S. Chase and others, and was referred.

On motion of Dr. S. W. Moorehead, Chairman of Section on Materia Medica, his report was read by title and referred.

Protests and explanations were offered against the appearance on our program of a man notorious for his efforts to break down all medical legislation. It was stated that he was not a member, and that hereafter his name would not appear as a participant.

Dr. F. S. Thomas moved that a committee of eleven, one from each Congressional district, be appointed, to look after legislative matters. This was discussed by Drs. P. J. Fullerton, Gilman, Kennedy and Eddy, and prevailed. The Chair appointed—

#### COMMITTEE ON LEGISLATION.

First district, J. A. Scroggs, Keokuk; Second dist., W. D. Middleton, Davenport; Third dist., D. W. Crouse, Waterloo; Fourth dist., S. B. Chase, Osage; Fifth dist., G. R. Skinner, Cedar Rapids; Sixth dist., C. B. Powell, Albia; Seventh dist., J. T. Priestley, Des Moines; Eighth dist., B. N. Torrey, Creston; Ninth dist., F. S. Thomas (Chairman), Council Bluffs; Tenth dist., W. N. Green, Webster City; Eleventh dist., G. W. Beggs, Sioux City.

On the recall of Sections the paper of Dr. D. C. Brockman upon "Extra-Uterine Pregnancy" was read by title and referred.

No reports from the Committee on Necrology.

A call for old Transactions was read, it being the wish of the Masonic Library at Cedar Rapids to have a complete file.

The Treasurer's and Secretary's expense accounts were read and allowed, as follows:

#### TREASURER'S EXPENSE ACCOUNT.

*Iowa State Medical Society in account with G. R. SKINNER.*

To postage . . . . .	\$12 50
To exchange . . . . .	1 75
To printing, envelopes and statements . . . . .	5 50
To stationery . . . . .	1 50—\$21 25

## SECRETARY'S EXPENSE ACCOUNT.

*Iowa State Medical Society in account with C. F. DARNALL, Secretary.*

1890—April	20.	To postage . . . . .	\$ 50
	21.	To expressage . . . . .	69
	30.	To expressage . . . . .	30
June	1.	To expressage . . . . .	25
	19.	To expressage . . . . .	41
	19.	To postage . . . . .	50
July	1.	To expressage . . . . .	25
	3.	To expressage . . . . .	30
	10.	To postage . . . . .	50
Sept.	30.	To postage . . . . .	1 50
1891—Feb'y	28.	To postage . . . . .	50
March	7.	To freight on books . . . . .	60
	15.	To postage . . . . .	15 00
April	13.	To printing, 1,600 circulars and envelopes . . . . .	16 50
	15.	To stationery . . . . .	1 40
	15.	To drayage, trunk . . . . .	1 00—\$40 20

The account of F. M. Van Pelt, stenographer, for \$35, for services this session, was allowed.

Dr. O. J. Fullerton, from the Committee on Finance, reported correct the account of the Treasurer as submitted for the year 1890.

The Treasurer submitted his report for this year as follows, which was referred to the Finance Committee :

## TREASURER'S REPORT.

*G. R. SKINNER, TREASURER, In account with the Iowa State Medical Society.*

## DR.

To cash on hand as per last report . . . . .	\$1,083 52
To cash received from members during the fiscal year ending April 15, 1891 . . . . .	330 00
To cash Dr. Watson, 2 v. Trans. Vol. VII . . . . .	4 00
April 16—To cash received from Committee of Arrangements . . . . .	10 00
April 17—To cash received from 35 delegates . . . . .	105 00
To cash from members at Waterloo, April 15, 16, 17, 1891 . . . . .	172 00
Total . . . . .	\$1,704 52

## CR.

1890—April 19.	By Secretary's order 154 . . . . .	\$ 7 50
June 3.	By Secretary's order 155 . . . . .	31 00
1891—Jan. 28.	By Secretary's order 156 . . . . .	37 84
Jan. 28.	By Secretary's order 157 . . . . .	45 34
Feb 25.	By Secretary's order 158 . . . . .	9 84
April 17.	By Secretary's order 159 . . . . .	21 25
	By Secretary's order 160 . . . . .	40 20
	By Secretary's order 161 . . . . .	7 50
	By Secretary's order 162 . . . . .	35 00
	By Secretary's order 163 . . . . .	100 00
	By Secretary's order 164 . . . . .	100 00
	By Secretary's order 165 . . . . .	100 00
	By cash on hand . . . . .	834 05
	Total . . . . .	\$1,704.52

*Waterloo, Iowa, April 17, 1891.*

Dr. Thomas moved a tender of thanks to the profession, the railroads, and the press of the city for the kindness shown us this session. Amended by Dr. Gilman to include Dr. Richards and the ladies of the profession for their kind entertainment, which amendment was accepted, and the motion prevailed

On motion, the Treasurer was instructed to pay, for journalizing, the sum of \$75 for each issue of the journal, and \$50 additional when the volume is completed.

#### FINANCE COMMITTEE.

The Finance committee was announced as follows : Drs. E. F. Clapp, S. W. Moorehead, J. R. Guthrie.

#### COMMITTEE ON WORLD'S FAIR.

First district, T. J. Maxwell, Keokuk; Second dist., A. W. Cantwell, Davenport; Third dist., G. H. Hill, Independence; Fourth dist., C. F. Darnall, West Union; Fifth dist., G. E. Crawford, Cedar Rapids; Sixth dist., J. R. Gorrell, Newton; Seventh dist., J. W. Cokenower, Des Moines; Eighth dist., T. P. Stanton, Chariton; Ninth dist., J. M. Emmert, Atlantic; Tenth dist., H. D. Ensign, Boone; Eleventh dist., R. E. Conniff, Sioux City.

The following permanent members registered during this session :

Thomas J. Maxwell, Keokuk,	Woods Hutchinson, Des Moines,
D. W. Crouse, Waterloo,	C. F. Darnall, West Union,
G. R. Skinner, Cedar Rapids,	F. M. Hiatt, Red Oak,
George F. Jenkins, Keokuk,	C. E. Ruth, Muscatine,
Wm. D. Middleton, Davenport,	O. J. Smith, Dunkerton,
J. R. Gorrell, Newton,	B. S. Louthan, Sunderland,
Gershom H. Hill, Independence,	J. R. Guthrie, Dubuque,
J. S. Braunsworth, Muscatine,	J. B. Tedrow, Williams,
H. Newell Sill, Strawberry Point,	W. N. Green, Webster City,
J. A. Scroggs, Keokuk,	J. W. Kime, Fort Dodge,
James W. Cokenower, Des Moines,	E. L. Bower, Guthrie Center,
I. P. Brubaker, Des Moines,	J. H. Hutchins, Hampton,
S. W. Moorehead, Keokuk,	H. D. Ensign, Boone,
A. C. Bergen, Sioux City,	J. C. Hughes, Keokuk,
Lewis Schooler, Des Moines,	J. A. Jeffrey, Nevada,
Irving W. Smith, Charles City,	J. L. Whitley, Osage,
D. W. Smouse, Des Moines,	J. D. McVay, Lake City,
A. W. Cantwell, Davenport,	Kate A. Mason, Mt. Vernon,
Joel W. Smith, Charles City,	G. W. Beggs, Sioux City,
D. M. Wick, New Hartford,	R. L. Cleaves, Cherokee,
J. F. Harp, Prairie City,	E. H. King, Muscatine,
S. B. Chase, Osage,	Edward Hornibrook, Cherokee,
J. McMorris, Belle Plaine,	C. S. Chase, Waterloo,
C. M. Hobby, Iowa City,	L. E. Robinson, West Union,
C. A. Frizelle, Viele,	H. W. Sigworth, Anamosa,
W. T. Eckley, Fort Madison,	J. S. Ormiston, Chelsea,
J. E. Sansom, Tipton,	L. W. Littig, Iowa City,
J. F. McCarthy, Dubuque,	S. N. Pierce, Cedar Falls,
I. S. Bigelow, Dubuque,	D. C. Brockman, Marengo,
T. P. Stanton, Chariton,	P. J. Farnsworth, Clinton,
A. J. Hobson, Bristow,	H. B. Young, Burlington,
Thomas Sherwood, Wilton,	Laura House Branson, West Branch,

G. E. Crawford, Cedar Rapids,	H. A. Gilman, Mount Pleasant,
O. J. Fullerton, Waterloo,	J. F. Cole, Oelwein,
H. C. Markham, Independence,	F. A. Weir, Jesup,
J. M. Ristine, Cedar Rapids,	J. C. Davies, Emmetsburg,
W. O. Richards, Waterloo,	M. I. Powers, Oskaloosa,
Eugene A. Crouse, Grundy Center,	Elmer F. Clapp, Iowa City,
James W. Dalbey, Cedar Rapids,	J. H. Murphy, Fairbank,
J. L. Powers, Reinbeck,	R. E. Conniff, Sioux City,
Albert Reynolds, Clinton,	Caleb Brown, Sac City,
W. Eddy, Waterloo,	E. R. Smith, Toledo,
J. P. Crawford, Davenport,	G. B. Ward, Fairbank,
J. S. Love, Springville,	J. S. Stevens, Cedar Falls,
Ward Woodbridge, Waubeek,	I. Pittiron, Oelwein,
J. F. Kennedy, Des Moines,	H. G. Ristine, Fort Dodge,
J. W. La Grange, Marion,	L. B. Hathaway, Reinbeck,
William Watson, Dubuque,	F. W. Powers, Reinbeck,
C. S. Shepard, La Porte City.	

The following delegates were, at various times during the sessions, admitted and made members :

*Austin Flint Medical Association*—T. A. Hobson, Parkersburg ; E. J. Blair, Garner ; M. W. Hill, Iowa Falls ; O. B. Harriman, Hampton ; T. J. Symington, Ackley ; I. L. Potter, Ackley ; G. W. Appleby, Bristow ; George W. Lee, Sheffield.

*Black Hawk County Medical Society*—W. B. Small, Waterloo ; L. Van Der Vaart, Cedar Falls.

*Cedar Valley Medical Society*—M. H. Waples, Dubuque ; F. W. Powers, Reinbeck ; M. N. Voldeng, J. C. Doolittle, Independence ; J. M. Ball, Jr., Waterloo ; L. B. Hathaway, Reinbeck ; R. A. Dunkelberg, Denner.

*Clinton County Medical Society*—P. J. Farnsworth, Clinton.

*Dubuque County Medical Society*—I. S. Bigelow, Dubuque.

*Fayette County Medical Society*—J. H. Craig, Volga City ; H. S. Hadsel, Maynard ; J. W. McLean, Fayette.

*Iowa Hospital for Insane, Mount Pleasant*—J. M. Parker, Jr., Mount Pleasant.

*Iowa Hospital for Insane, Clarinda*—F. McClelland, Cedar Rapids.

*Iowa Union Medical Society*—George W. Wilson, Tipton ; J. A. Ladd, Traer ; G. L. Carhart, Marion ; S. S. Spicer, Blainstown.

*Mitchell County Medical Society*—Dudley S. Brainard, Staceyville.

*Madison County Medical Society*—H. E. W. Barnes, Macksburg.

*North Central Iowa Medical Society*—H. B. Irish, Forest City ; J. B. Charlton, Clear Lake.

*North Iowa Medical Society*—E. C. Miller, Rockwell.

*Northwestern Iowa Medical Society*—Charles McAllister, Spencer.

*Story County Medical Society*—F. S. Smith, Nevada ; J. I. Hostetler, Colo.

*Wapsie Valley Medical Society*—E. E. Dunkelberg, Frederica.

The following gentlemen were in attendance and made members by invitation, and participated in the proceedings :

J. F. Fulton, St. Paul, Minn.,	C. A. S. Prosser, Marcus,
George N. Kreider, Springfield, Ill.,	D. S. Bradford, Janesville,
F. E. V. Shore, Des Moines,	J. H. Brower, Calliope,
Charles W. Childs,	T. D. Ford, Plainfield,
M. Shim, Winthrop,	C. L. Whitmire, Waverly,
A. A. Matthews,	E. J. Van Meter, Tipton,
William M. Barber,	R. J. Nestor,
Geo. N. Kratoehvil, Cedar Rapids,	M. L. Allen, Tama,
E. C. Fortner, Sumner,	H. A. Wheeler, Onawa,
G. M. Nesbit, Mount Auburn,	C. A. Hurd, Northwood,
B. E. Strickler,	P. C. Dunkelberg, Schaller,
O. D. Taft, Elkhart,	F. W. Chase, Cedar Falls,
W. D. Graham, Waterloo,	W. A. Ralph,
G. W. Holmes, Cedar Rapids,	F. E. Brown.

No further business appearing, the session adjourned at 1 P. M.

C. F. DARNALL, *Secretary*.

## SECTION OF PRACTICE OF MEDICINE.

### TREATMENT OF PLEURITIC EFFUSIONS.

GEO. F. JENKINS, M. D., KEOKUK.

*Mr. President and Ladies and Gentlemen of the Iowa State Medical Society:*

It is probably unscientific to present a paper discussing the treatment of a disease without first considering its etiology, pathology, symptomatology and diagnosis, and then formulating your treatment in accordance with the deductions or conclusions reached after a comprehensive study of the disease in all its relations, but the twenty-minutes rule makes it impossible for any one to discuss even superficially so important a disease as pleurisy. Consequently I have chosen to present only a few suggestions in relation to the treatment of sero-fibrinous pleuritis.

It has occurred to me that the recent adoption of antiseptic measures should very materially change our methods of treating pleurisy with effusion. Before taking up the therapeutics of the disease I will report two cases—one illustrating the old and generally approved method of treatment and the results accomplished—the other the method that should, in my opinion, be pursued in these days of antiseptic surgery.

Case 1. On June 22, 1885, I was called to see Mr. J. H. F., aged 31, married, native of Ohio, and a painter by trade; had always enjoyed good health, but not very robust. He stated that he was attacked three weeks before with chilliness followed by fever, a sharp pain in the side, being most intense at a fixed point, and greatly increased by taking a long breath or

coughing. His cough was dry and unaccompanied by expectoration. He had gone to a physician's office and was told that he had remittent fever complicated with neuralgia. The doctor gave him a prescription which he continued to take for ten days, and as he grew worse instead of better he sent for the doctor. He again prescribed without making a careful physical examination, and still called it remittent fever. After this the patient was seen twice by his physician, when he became dissatisfied and sent for me. When I entered the room I found him lying in bed with his shoulders elevated and complaining of dyspnœa and a tendency to syncope, countenance pale and anxious and a considerable degree of emaciation. Upon a careful physical examination I found decided lessening of respiratory movement upon the left side, with bulging of the intercostal spaces. Measurement showed the left side three inches larger than the right; percussion gave flatness all over the entire side, while auscultation showed an absence of all respiratory sounds with modified and displaced cardiac sounds. My diagnosis was pleurisy with effusion, and after trying hydragogues and pilocarpine for four days without effect, I inserted the small needle of a Dieulafoy aspirator just under the angle of the scapula and drew off six ounces of a rather turbid fluid. A tonic and supportive treatment was pursued and the patient kept in bed. It was hoped that the removal of a small amount of fluid, and thus taking the pressure off the vessels, might stimulate absorption. In a few days it became apparent that the effusion was increasing and without further delay about two quarts of a reddish, rather turbid fluid, were removed. The lung failed to expand properly, and while the operation gave very decided relief, the improvement was only temporary. In a few days dyspnœa and a tendency to syncope had returned, and the aspirator was again brought into requisition. The fluid was now semipurulent and as septicaemic symptoms began to be manifest, a free incision was made and a drainage tube inserted and the pleural cavity washed out daily with an antiseptic solution. In three weeks, as the case was not progressing satisfactorily, another opening at the bottom of the pleural cavity was made and the drainage tube passed in at one opening and out at the other. By this method of drainage and antiseptic injections, with tonics, nutritious diet and other invigorating measures, the discharge gradually lessened, the drainage tube was withdrawn and the fistulous opening closed in about eighteen months after the operation. The man is living and following his trade to-day, and we may say he recovered, but the recovery was far from satisfactory. Aspiration was deferred too long and as a result the lung was compressed against the spine at the upper and posterior part of the thoracic cavity and held in that position in a condition of atelectasis till the fibrinous exudation had produced such strong adhesions that it could not expand under the inspiratory force. It was only after the consequent fistulous empyema had lasted eighteen months that the pleural cavity had sufficiently filled with cicatricial tissue, which, together with three inches

lessening of the side, produced obliteration of the vacuum left by the collapsed lung.

Case 2. On February 4, 1891, C. D. called at my office complaining of all the rational symptoms of pleurisy. He had been sick for thirty hours and upon auscultation I got a friction sound over the lower part of right chest, diagnosed pleurisy and gave five grains of antipyrine and five grains of quinine every four hours when awake, and ordered three Comp. Cath. pills at bed time, advised him to go to bed and remain perfectly quiet, to use a sinapism over the seat of the pain if the suffering was great and to let me hear from him if he was not decidedly better the next day. In three days a messenger called and said the patient was better, but still had pain, fever and shortness of breath, but did not think it necessary for me to see him. Two days later I visited him and found him with very little fever, slight pain, but great difficulty of breathing, especially on exertion. A physical examination showed effusion reaching almost to the nipple when he sat up. I ordered dry diet and gave ammonia salts and hydragogue cathartics; this failing to prevent the increase of effusion he was given pilocarpine until the full physiological effects of the drug were developed. The fluid still continued to increase, and after four days the aspirator was used and about four ounces of fluid removed; it was hoped that by the removal of this small amount the absorbents would be sufficiently stimulated to remove the remainder spontaneously, but we were disappointed, and in a few days more, the effusion having materially increased, the small needle of the aspirator was again introduced in the sixth intercostal space in the axillary line, and about two pints of sero-fibrinous fluid slowly removed. In both these operations antiseptic precautions were carefully observed. This operation gave prompt and decided relief, the lung was again expanded, following the fluid down, filling the cavity and thus effectually preventing a deformity of the chest. The remainder of the fluid was absorbed and the patient made a satisfactory recovery. These two cases are similar to others that have come under my observation. The first shows the great deformity and loss of lung capacity resulting from the old and ordinary method of treatment. The second, the satisfactory recovery and complete restoration of lung capacity under what I believe to be the proper method of treatment in this day of brilliant achievements for antiseptic surgery.

There is a great difference of opinion among physicians as to the indications for the performance of aspiration in pleurisy. Many authorities, even among the most enthusiastic advocates of the operation, have contended that unless there is immediate danger from the excessive collection of fluid, it should not be withdrawn, as it would at once reform, and additional inflammatory action might be excited by surgical treatment. Castiaux, however, as long ago as 1873, strongly advocated the view that the operation by aspiration will hasten the cure of acute pleurisy and prevent the formation of the fibrinous deposits and bands, which to a greater or less degree, even



in moderate effusions, impair the expansion of the lungs. He relates thirty-seven cases, almost all of which were operated upon by himself. He was successful in all of them, and the patients suffered no inconvenience or discomfort in consequence. In most of his cases the pulse and temperature fell (perhaps the same day, certainly the next morning), and even became normal after the operation, and the patients improved rapidly. He aspirated as soon as he detected the presence of fluid by exploratory puncture, believing that from the moment we have at our disposition sure means of relief which are harmless, it is useless to leave to nature the duty of removal—useless to leave to untrustworthy medication the relief which we can promptly give. He operated at the height of the first or inflammatory stage of the disease. He assigned as reasons for operating, that he thereby relieved the lung of the compression which impairs expansion; that he removed a liquid rich in fibrin and capable of increasing the thickness of the neo-membranes; that by restoring the power to dilate he further prevented the lung from being compressed by the false membranes. These membranes cannot become organized unless they are separated by fluid. He states that he removed the fluid as completely as possible. As soon as the cavity was empty, respiration was made easy and the patient was relieved. Auscultation showed, by the vesicular murmur, that the lung had resumed its place without difficulty from top to bottom. The effusion returned only in a few cases, with high temperature and frequent pulse, but another operation effectually arrested them. The pleurisy was cut short, and puncture was considered the means of arresting the disease. The duration of the disease treated by this means was much shorter. Thus the patients were not forced to retain for months the liquid and false membranes in their chests. He states emphatically that there never supervened any accident, and especially that he never witnessed as a result the transformation of the serosity into pus, although it might appear theoretically likely to occur, as the serous membranes, already inflamed, ought to be more sensitive to injury.

This testimony is very strong, and when we remember that Castiaux wrote this before the days of antiseptic surgery, and even when the aspirator had not reached anything like the degree of perfection that has been attained at the present day, we may indeed consider his results somewhat remarkable. Certainly, with all the wonderful improvements in instruments and methods of modern surgery, every one can accomplish equally good results.

Pleurisy with effusion, in my opinion, is most successfully treated as follows: During the stages of hyperæmia and lymph-exudation, the patient should be put to bed in a room of comfortable temperature and given a restricted fluid diet. He should have a free purgative and be brought promptly and fully under the influence of quinine and antipyrin and the effect maintained. This treatment equalizes the circulation, lessens pain,

reduces the temperature, diminishes hyperæmia, and very materially lessens the amount of sero-fibrinous exudation. If the pain is very intense a hypodermatic of morphine and atropine may be given. The important indication of treatment, in this stage, is to cause adhesion of the two pleural surfaces, and thus prevent serous effusion. A great deal can be done to assist the above treatment in bringing about this termination, by strapping the chest with heavy and good adhesive plaster, after the manner of Roberts. The strips of plaster, about three and a half inches in width, should be brought around the chest from mid-spine to mid-sternum during forced expiration, following the course of the ribs, and then one diagonally across this, from spine to sternum, and this process of strapping continued till the entire half of the chest is covered. This very materially lessens the expansion of that half of the chest, lessens pain, and by holding the two pleural surfaces quietly in contact, assists very decidedly in bringing about adhesion.

After febrile symptoms have subsided, and during the stage of serous effusion, the free use of the ammonia salts and a dose of comp. jalap powder before breakfast, with what is called "dry diet," often lessens exudation, promotes absorption, and gradually establishes convalescence. If, under this treatment, the sero-fibrinous exudation continues to increase, pilocarpine should be tried. The full physiological effects of the remedy should be developed and maintained in a moderate degree for two or three days. If by a careful physical examination, embracing inspection, mensuration, percussion and auscultation, it be found that the chest is filling with fluid notwithstanding your treatment, aspiration should be performed.

The operation should always be performed at the site of the fluid, but by preference in the 6th, 7th or 8th intercostal spaces, in the axillary line. The smallest sized needle should be used, and passed close to the upper border of the lower rib. The needle, aspirator, hands of the operator and thorax of the patient should be made thoroughly aseptic, and great care taken, so that the instrument is in good working order and that no air be admitted into the pleural cavity. The fluid should be slowly withdrawn and without too much suction force; this gives the lung time to expand, and prevents the rupture of capillary vessels. In recent cases all the fluid should be removed at one operation; in cases of long standing the physician should determine by percussion and auscultation whether the lung is expanding and following the fluid down, and upon this fact base his opinion as to how much fluid he should remove.

If the operation is performed early, before the fibrinous exudation is too extensive, the lung will promptly and fully expand. After the withdrawal of the fluid the side should be thoroughly strapped with adhesive plasters, as recommended above. Thoracentesis should be performed whenever fluid has accumulated and has not been promptly removed by the moderate use of pilocarpine. The patient should never be allowed to suffer any consid-

erable inconvenience from its presence. Medication, in this stage, should be confined to nutritious diet, tonics, particularly tr. ferri chlorid, and measures to prevent the re-accumulation of the fluid—the fluid being promptly removed by aspiration.

It is always injurious and unscientific for the physician to try to stimulate the absorption of fluid exudations by strong medication, when he can, without pain, exhaustion or injury, accomplish that result very promptly by aspiration. If thoracentesis is carefully and antiseptically performed the operation is devoid of danger, and it can be safely repeated as often as required.

I have said nothing about purulent pleurisy, or empyema. Of course, all physicians are agreed as to the absolute necessity for some form of operation when there is pus in the thoracic cavity. Tonics, cod liver oil and nutritious diet, with out-door exercise as soon as possible, should constitute the general treatment; while free drainage and antiseptic irrigations are the approved methods of surgical interference.

#### DISCUSSION.

DR. CRAWFORD: *Mr. President*,—In the line of this paper I agree fully with the antiseptic measures which may be employed so that the operation of paracentesis may be resorted to frequently without danger. This I verified very fully in a case in my own practice. About Thanksgiving time last fall I was called to see a man some 60 years of age, who was sitting in an upright position, who had not been in bed for several nights or days. He was in the greatest anguish and had to be fanned by attendants and was suffering from the most distressing dyspnoea. It was said that he was suffering from asthma. I stripped his chest and made a physical examination and found a total absence of vesicular murmur, and dullness on the left side of the thorax even to flatness. These symptoms were referable to the left side and the heart was over on the right side quite below the right nipple. I used the hypodermic needle to verify my diagnosis of the effusion and found a bloody serum. With the able assistance of your worthy president, in a day or two the operator aspirated this man and withdrew ten beer-bottles full of bloody serum. (Audible smiles.) You all know the capacity of a beer-bottle. This relieved the dyspnoea entirely, but it rapidly refilled and the next week we drew by the same method four or six beer-bottles of bloody serum. (A voice: "The beer-bottle is the Davenport graduate.") This man, after a few days, seemed to improve somewhat. We ventured the diagnosis of a tubercular or cancerous condition, and as weeks and months passed by without any improvement, especially in his asthma and the rapid refilling, it was very evident from the increase of pain, there was no doubt of the cancerous origin. He finally died at the end of about four months from exhaustion, and the autopsy showed a very extensive cancer-

ous condition which was verified by microscope. The lung was atrophied so it was not larger than your fist—in shape a little more elongated, and there was hardened tissue on one surface and extensive adhesion to the pleural surface. I mention this case and think it is one which is phenomenal. I have seen no comparison to it in any literature. For the veracity of my statements I refer you to my friend, Dr. Middleton.

DR. MAXWELL, (Keokuk): *Mr. President*,—I merely rise to add a little experience I had with these cases in the line of the paper that has already been read, as to the curative value of the withdrawal of fluid from the pleural cavity. The two cases which I have specially in mind at present were effusion on the left side filling up the entire pleural cavity, displacing the heart so that it pulsed under the right nipple instead of the left. One was a case resulting from latent pleurisy or pleuritis, in a boy about 14 years of age, without any of the ordinary symptoms of pain and fever, the effusion coming on very gradually and apparently imperceptibly. The first symptom that was noticed was difficult breathing, shortness of breath, and when called to see the boy he had all the symptoms that have already been related of effusion in the left pleural cavity. That, I think, was about sixteen years ago. I immediately aspirated the case, making my puncture in accordance with Dr. Jenkins' directions, in the axillary region in the sixth intercostal space, drawing off six pints of fluid from the cavity, with amelioration of the condition. The rapid pulse and dyspnoea that attended the condition of the effusion disappeared and the sac never refilled to any extent. I drew off, I think, about four ounces at a subsequent operation, and the boy fully recovered with a somewhat damaged chest, but the heart never regained its proper condition on the left side. It seemed to have resided or made its permanent location just behind the sternum in the center, but he finally recovered and grew to manhood and grew to be a strong young man, although there was considerable sinking of the chest on the left side. The other was a case of a man 45 years of age, who had a chronic condition of effusion and it was doubtful as to the exact character of the effusion. It had existed for months. The heart was in the same position, precisely under the right nipple. I aspirated that case in the same way, and as the fluid was withdrawn he began to cough, as the lung unfolded with the inward pressure and the in-rushing current of air, the cells being rudely wrenched open; their surfaces having been glued together for so long a time, it produced some little hemorrhage at the time, and quite a cough with expectoration of bloody serum from the lung, but that case was cured by that operation and the lung soon assumed its normal activity. The heart came back into its normal condition from about in the same position as the first case. But the case recovered with one aspiration. So that I heartily approve of the treatment that has been indicated by the paper read. I think that we ought not to hesitate at all. The important matter of puncturing the chest with the small aspirating needle, with proper precautions as to the antiseptics, is not as serious an operation as it would be to open a bowel. In fact it can be done with very little pain. The puncture gives very little inconvenience or pain at the time and I do not think that we

should hesitate at all to make it a routine treatment at once without waiting even on pilocarpine or anything else. I think pilocarpine or any other remedy has but very little control over that condition. I would rather trust to opiates than to antipyrine or quinine in those cases. So that I merely rise to give my testimony and experience in those cases and indorse what has been said as to the curative effects of aspiration.

DR. J. W. SMITH, (Charles City): *Mr. President*,—I have had a little experience in that line of surgery. My experience was something like this: In quite a number of cases where aspiration was resorted to, sixteen to twenty ounces of fluid were removed—all that could be. The recovery was quite prompt and complete; seemed to be little or no trouble, except where, having gone on to a purulent condition, the result was usually fatal sooner or later. I was a little surprised at such an authority as Dr. Jenkins saying nothing about resecting a portion of the ribs in such cases. This is laid down by some of the best authorities as the appropriate system. I have seen it done, although I never did it myself. Of course under antiseptic precaution.

DR. JENKINS: *Mr. President*,—The only object in writing this paper was to bring out the discussion of the question. Of course, when asked to write for the Society, the trouble is to get something to write about. I believe it a very erroneous practice to allow the effusion to go on increasing in the pleural cavity and result in suppuration. You want to improve the quality of the blood, build up the patient, husband the vital forces and waste no time in attempting to get fluid in an absorbent state that you can remove yourself. That is the point in the treatment. I certainly think if there is any change in the treatment that it should be along this line. And I think in every case as soon as you discover any fluid in the cavity you should insert the aspirator tube, draw off the fluid, and if it re-fills draw it again. There is no sort of danger of that fluid undergoing a purulent change if it is properly withdrawn. Where expansion of the lung does not take place, taking out the rib and letting the chest fall in would facilitate the recovery. If aspiration is performed at once it will prevent permanent contraction of the lung. If the fluid is retained it will in a very few days bind that lung down so that it cannot expand; the longer you let it remain the greater the accumulation of fluid. While I only mentioned one authority, I believe today the best physicians are following this line. I think all good physicians everywhere should follow it. It is a curative measure of the very highest value.

DR. SCHOOLER: *Mr. President*,—The point was raised by my friend, Dr. Smith, of the conversion of the fluid effusion into purulent effusion by means of aspiration, of the result being bad. I believe in the present condition of pathology that it is understood that effusion cannot be converted into purulent effusion without the introduction of the pus microbe, and if these operations of puncture of the closed cavities are performed antiseptically, that is, if the surface at the point at which the puncture was made is specially prepared and the instrument carefully disinfected, there is not the

least danger of introducing the pus microbe into the cavity and no pus will originate from a simple operation of that kind.

DR. SMITH: Suppose you have the pus there?

DR. SCHOOLER: It is true you sometimes have purulent accumulation before the operation. When they are subsequently introduced into the lungs there is nothing to prevent the rupture of air-cells and the introduction of pus microbes through that channel, but there is not so much danger from a direct admission of air as from infected instruments. The method of making an opening for the drainage tube, whether the proper or improper way, is an antiseptic measure which has been practiced quite a while. That was practiced long before antiseptics was practiced as a science. It was simply antiseptics without the operator knowing the fact. The drainage tube drains away the fluid before it has time to develop in the pleural cavity and in that way antiseptics is practiced either with or without the use of antiseptic solutions. At the present time the best operators operate by aspiration before resorting to resection. Even in case of empyema we find the cavity does not refill. Sometimes one or more aspirations are resorted to. Now it is a singular fact that in the vicinity of Des Moines—in Dr. McCleary's neighborhood, Indianola—within the last year a large number of cases of la grippe, as it is ordinarily termed, were followed by serous and purulent effusion into the pleural cavity without the symptoms of pleuritis being at all well marked. So many of these cases were treated by Drs. McCleary, and Baker, and others in that vicinity, as almost to constitute an epidemic, if such a thing is possible, of effusion into the pleural cavity. Out of quite a large number I think that none have died. This has been attributed to the treatment with drainage and antiseptic precautions. I think none of the cases where there was serous effusion, bloody effusion, have been converted into purulent effusion, on account, perhaps, of the rigid antiseptic practice in aspirating and drainage of the cavities. True, there are all the elements necessary in sero-purulent effusion for the development of purulency except the pus microbe. You have diapedesis and leucocytes poured out from the vessels that may, with the pus microbe, form pus under any and all circumstances.



## EDITORIAL.

It was by no means one of the least sapient sayings of the wise king that "of making many books there is no end." If he had lived in these times I think he would have specially revised the remainder of the proverb so as to read "and much medical journals are a weariness to the flesh," and it is with a keen sense of our responsibility and possible guilt that we venture to lay another straw in the shape of the VIS MEDICATRIX upon the back of that already over-laden camel—the physician's reading hour.

Our only justification is that it is only a very little straw, and being slightly peculiar in shape and length it may fill in some little gap in the load or help to balance some other straw on the opposite side.

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Its first extenuating peculiarity is that it is the only professional journal published in the state (while all the surrounding states have from one to five each), and hopes to "fill a long-felt want" as a medium of communication and bond of union between the scattered members of the profession of Iowa.

Its second modest plea for standing room on the starting-line is based upon its departments of comparative medicine, flashes of side light from the sister branches of phytology and veterinary surgery. It has long been our conviction that the brightest rays of coming illumination upon the dim regions of human pathology are to be looked for in the direction of a closer knowledge and study of the diseases of animals and plants. That the observation of the natural conditions and behavior of their tissues in health and disease will prove an even more fruitful field of research than artificial experiments upon them in the laboratory. That the key to many a perplexing pathological problem is to be found in the simpler, cruder reactions of the protoplasm of our vegetable ancestors and animal cousins.

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Under the myriad phenomena of growth and disease in every realm of organic being lies the same great vital force, the grand reparative power of nature, the true "Vis Medicatrix Naturæ." This is the sleeping lion which all our boasted drugs and reme-

dies are but as tiny stings and javelins to rouse into action. It is in reverent recognition of this fact and as an humble dedication of its pages to the study of it, that this leaflet has been christened. Every possible fact bearing upon its method of action is of vital interest to us, and I think we have practically ignored far too long already the large and interesting body of information gathered by our enthusiastic and able co-laborers, the horticultural botanists and veterinary surgeons.

It may be objected that the prairie of human medicine alone is already so boundless that one individual can scarcely hope to get a working knowledge of more than a section of its surface, but we are strongly of the opinion that the more different points of view from which we are able to regard our chosen life-study, the broader, clearer and simpler will be our conception of it.

That a few additional facts from the sister branches of therapeutics will serve to simplify by explaining rather than to encumber. That facts are more easily grasped and correctly understood if studied in all their relations, and that the man who confines his attention solely to a fractional part of any field in medicine or anything else is apt to become a fractional part of a man, a sort of intellectual factory-hand. He is apt to come to regard everything through the chromatic lens of his specialty, and to magnify its importance till he resembles the German professor of Greek, who, on his death bed, regretted that he had not confined his whole attention to the Dative case.

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Besides, does it not seem highly probable already that most of our distinctive disease-processes are merely reversions to forms of vital activity which were normal in our more or less remote ancestors? This has been distinctly acknowledged in the case of gout. "Our gouty patients," says Garrod, "are a sort of birds." In other words their liver-cells have reverted to the type of those of their avian ancestors, so that they form uric acid instead of urea, as the final product of their metabolism. Even our limited study of the pathology of tubercle has strongly raised the suspicion in our mind that we have here another process of reversion. That the giant-cell is a bit of protoplasm, which, obeying the instinctive impulse of all living units to multiply rapidly to avoid extinction when under-fed, is preparing to increase by endogenous fission, as its amoeboid progenitors did.



Its clustered progeny amoeba-lived and half starved, rapidly droop, furnish an attractive nidus for that ubiquitous scavenger, the tubercle bacillus, and a "caseating tubercle" is produced.

In cancer, that "rebellion of the cells," as it has been well termed, the reversion would appear to go back only to the hydroid stage, with simple fission as the prevailing method of multiplication, and we have in consequence a longer-lived, more aggressive cell-growth; more "malignant" as we term it.

Senility of tissue would appear the determining factor rather than starvation. Let a mesoblastic cell be the ringleader instead of an epiblastic one and we have sarcoma with its consequently less brilliant but more stable achievements.

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In short, as the French savant has defined dirt, as "matter out of place," so disease would appear to be vital action "out of place," chronologically or otherwise. Of course, in the present state of our knowledge, these suggestions are but "glorious guesses," but we intend to follow them up by careful investigation, and they are only some of the least of the questions upon which we hope light may be thrown by the opening of these columns to the joint contributions of the three sister professions.

We invoke in advance the charity of the profession upon the shortcomings and mistakes of both the journal and their humble servant, the editor, and earnestly invite assistance and criticism from every part of the field and country.

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#### FRIEND OR FOE?

According to the researches of Frank, some plants like the oaks, hazelnuts and chestnuts are enabled to take up the mineral elements of the soil by means of a white, mould-like fungus, which closely invests the roots, often penetrating the epidermal cells. This fungus has been called *Mycorrhiza*. If these views are correct, then the white mould-like fungus covering the roots of many trees and shrubby plants cannot be considered a diseased condition. It would appear to be only when diminished vitality on the part of its host permits it to encroach upon the tissues that it becomes actually injurious, truly parasitic.

[Does this suggestion throw any light upon the vexed question of the origin of the pathogenic bacteria, or the possibility of the development of the innocent bacilli of the buccal cavity into the Klebs-Löffler of diphtheria or the bacillus communis coli into the bacillus typhosus?—ED.]

## DEPARTMENT OF DISEASES OF ANIMALS.

S. STEWART, M. D., D. V. M., EDITOR.

(Secretary Iowa State Veterinary Society.)

### MEAT AND MILK INSPECTION.

Public health is a subject which now receives considerable attention from all intelligent citizens, it being of vital importance to everybody. The thoughtful man, when seeking a place to live, inquires as to the healthfulness of the locality. He wants to know whether the air is pure, whether the water is wholesome, whether the drainage is good, whether epidemic or endemic diseases are prevalent. The medical profession has taught the public the importance of these things to the maintenance of health. Strange as it may seem, the medical world has not yet clearly comprehended the afflictions which come to mankind through the consumption of the milk and flesh of diseased animals, and consequently has not proclaimed the importance of careful inspection of this source of food supply. The commercial adulterations of milk and other foods have claimed attention, and statutory laws provide for their prevention. Some cities provide for the seizure and destruction of decomposing meats, fruits and vegetables; but none have adequately provided against the sale of the products of diseased animals.

A few diseases in man are so closely associated with the consumption of diseased meat and milk that their relation, as cause and effect, have been readily perceived, as in cases of trichinosis and ptomaine-poisoning. Diseases emanating from the same source, but which do not develop so quickly, fail to attract attention to the cause.

Veterinary writers have endeavored to arouse the medical world to the importance of this source of danger in America, but so far little heed has been given to their warnings. Bavaria and Switzerland, also most large cities in Europe, have a complete veterinary service to inspect their animals killed for food, and they find many of them diseased and totally unfit for human consumption.

Veterinarians have attested the prevalence of tuberculosis among dairy cattle, and recent experiments have demonstrated the identity of the bacillus of bovine tuberculosis with the bacillus of human tubercle; have proven that this disease is transmissible from man to animal and from one animal to another.

Dr. E. F. Brush has gathered facts which prove the coincident geographical distribution of tuberculosis and inbred dairy cattle. He says:

"It seems to me very easy to settle the question whether the dairy cow derives the contagion from us, as some thoughtlessly allege, or no. The

only possible way in which a cow could acquire the contagion would be from its attendant, and surely, if that attendant were affected, the only thing the cow could derive the disease from would be his breath or sputa, and this is the proportion of one man to fifteen or twenty animals; the attendant, too, may or may not be affected, while in every dairy the percentage of animals affected by tuberculosis is from 5 to 25 per cent. Now, the danger the other way is straight and plain, because the human subject absorbs the entire animal, drinking its secretion while this lasts, and finally eating the animal up."

The people who do not use bovine dairy products as food are free from the ravages of this disease, while the nations in which dairying is an important industry, are sorely afflicted by it. As Dr. Brush most convincingly argues:

"I do not attempt to dispute the fact that it is possible for one human subject to convey the infection to another, but I think this danger very remote in comparison with the prime danger of bovine infection. If we take countries like Algiers and Egypt, where the tubercular bovine is still absent, but the human consumptive present, and the native population still exempt, we surely see that the danger of communication from human to human is not imminent; while on the other hand, if we take countries like Madiera, Australia and the Sandwich Islands, we find very plainly that the introduction of in-bred dairy cattle tubercularizes the natives. There are localities with a rigorous climate, where dairy cattle cannot be closely in-bred, because in-bred cattle could not stand the severity of the climate, and they are not, by reason of their breeding, tubercular. Such animals are not deemed by the modern breeder the best dairy animals, for requiring, by reason of their vigor and robustness, more of the food they consume for their own nutrition, they have less of this food available for making milk. In the highlands of Scotland and the Hebrides, where these creatures abound, the countries are not known as dairy countries, neither are they tubercular. It is significant that in the great dairy countries, such as England, Ireland and Denmark, the marked prevalence of tubercular consumption is a settled fact. Now let us look at China. The reigning dynasty and high officials are of Tartar blood; the bulk of the people are pure Chinese. All testimony indicates that the pure Chinese, of which the poorer classes are entirely made up, do not drink milk, while the Tartars, the ruling and military class, do get milk and beef; and I can show from reputable medical authority in China, that of the two classes the former are the non-tubercular. Among the poorer classes pulmonary consumption is absent or rare, while among the better class of Tartar Chinese phthisis is not an uncommon disease.

"Of South America, Holden, in his interesting book on Colombia, says that butter is unknown, and milk only occasionally used. He also adds, in his chapter on diseases: 'There is little or no consumption; I do not recollect of a single case.' The interior and mountainous parts of the Argentine Republic 'where such a thing as a dairy farm is unknown,' are practically exempt from phthisis. The same is true of Ecuador. In the Old World, Egypt, where the natives have but a scanty supply of buffalo-milk, is strikingly free from phthisis."

Twenty years ago the prevailing notion concerning the chief cause of pulmonary consumption in man was hereditary tendency; ten years ago the idea of contagion began to assert itself; to-day we discover that it is contracted through the food supply as well as by association. Tuberculous milk is a greater source of danger than crowded sleeping apartments.

To the people of Iowa this source of infection is not so alarming, for the percentage of tuberculosis in her dairies is very low, as it is in her people; but in Maryland, New York and Massachusetts the conditions are different. There 20% to 30% of the dairy cattle are tuberculous; also 25 % of the human deaths reported in Boston, New York and Baltimore are ascribed to this disease. There is evidently a direct relation between the prevalence of tuberculosis in dairy cattle of a locality and the death rate in humanity in that locality due to that disease.

The records of the public abattoirs of Europe direct our attention to the numerous diseases found in animals slaughtered for food, and should stimulate us to study them in relation to similar diseases in man. The lists include Tuberculosis, Peritonitis, Scrofula, Jaundice, Trichinosis, Hydatids, Echinococcus, Actinomycosis, all of which are common to man, and part of them are known to be transmissible to man. When we know more about diseases, we may find others which man acquires by using the milk and flesh of diseased animals.

The commercial restrictions placed upon American meats and meat products by some foreign countries created a demand for the removal of the alleged cause, and the department of agriculture secured the enactment by the last congress of a law providing for the careful inspection of all food animals, meats and meat products intended for foreign and inter-state commerce. The importance to Americans of that portion of the law which relates to inter-state commerce reveals the wisdom of some guiding minds in the bureau of animal industry.

It is a great stride in public sanitation. It will enable any community or state to protect itself from the dangers due to diseased meats. It will teach the public that disease may be acquired by the consumption of meat or milk obtained from diseased animals. This knowledge will demand the services of veterinarians to determine the wholesome from the unwholesome, to separate the diseased from the healthy. Milk users will demand the assurance that the dairy furnishing their supply is free from disease. Meat users will not trust to the diagnostic ability of the butcher.

This law opens a desirable and important vocation for young men and women. Veterinary meat inspectors will be wanted everywhere. Every board of health will include one or more veterinarians. Lady microscopists will find financial encouragement to aid in this work.

Dr. Salmon, chief of the Bureau of Animal Industry, has placed veterinary inspectors in charge of several of the large slaughtering establishments

of the country, and all slaughtering and packing-houses doing foreign and inter-state business will be supplied with inspectors as soon as possible.

If the physicians of our land would become careful and earnest students of the importance of meat and milk inspection, and direct the public mind to this vital subject, rigid inspection in every locality would soon be demanded. Veterinary inspectors would respond to the demand, and co-operate with physicians to limit the devastation of preventible diseases.

#### NOTES AND EXCERPTS.

DR. F. S. BILLINGS will conduct the investigation of diseases of animals for the Nebraska Experiment Station, commencing July 1, 1891.

THUM, a German veterinarian, reports the successful treatment of diphtheria in turkeys by the topical application of 1% of glycerine solution of carbolic acid, alternated with 2% solution of creolin in glycerine and water.

DR. PETERSON, a Massachusetts veterinarian, reports a case of fatal epistaxis in a heifer. Astringent injections, cold applications and plugging of nostrils were resorted to without avail. Post-mortem examination by the owner failed to discover any lesions to account for the hemorrhage.

THE latest method of treating bacteridian disease by the intravenous injection of the blood-serum of some animal in whose body the particular bacterium cannot live, will add a new interest to the study of comparative medicine. Who knows that rats and mice may not yet be of great value to afflicted humanity?

A BENGAL TIGRESS, 12 years old, which had been kept in the Central Park menagerie, New York, for six years past, began to fail in health about April 1st, and died April 22d. The veterinarian in charge diagnosed pneumonia from her disturbed respirations and peculiar methods of movement. The autopsy revealed double pneumonia with miliary tubercles scattered throughout the lungs and liver.

VETERINARY associations exist in nearly all the northern states, and the notable prominence given to discussion of ethics is good evidence that a healthy professional sentiment is prevalent in these societies. The veterinary profession is taking advanced views on this subject, considering the recency of its development and organization. Rigid codes of ethics are usually adopted, and several trials for their violation have been recorded within the past year.

FL. EXT. CANNABIS INDICA is an excellent antispasmodic for the treatment of colic in horses and cattle; it is easily administered, and a safe agent to entrust to the care of attendants of sick animals. The mucous membrane of the mouth is a surer absorbing surface than that of the stomach, and one to two fluid-drachm doses of this drug placed on the tongue of a horse or cow at intervals of ten to twenty minutes will relieve the spasmodic pains of colic.

PROMINENT veterinarians in various parts of the United States are agitat-

ing the establishment of a uniform standard and title of veterinary medicine in this country. The several schools in America grant their graduates differently styled titles, such as V. S., D. V. S., D. V. M., etc., and it is the hope of the agitators to secure a uniformity of title, and establish a uniform standard of examination for the title or degree; the examination to be conducted by a National Board. The scheme is a good one and its adoption would prove a great advantage to the profession.

It required fifteen months' time and cost \$135,645 to stamp out contagious pleuro-pneumonia of cattle in Cook county, Illinois.

## DEPARTMENT OF PLANT DISEASES AND BACTERIOLOGY.

[In this department all questions pertaining to plant life, especially interesting to physicians, will be considered. From time to time reviews will be given of papers pertaining to fungi, especially such as cause pathological conditions. Matters relating to the adulteration of foods and medicines will be considered. All are cordially invited to contribute to the columns of this department.]

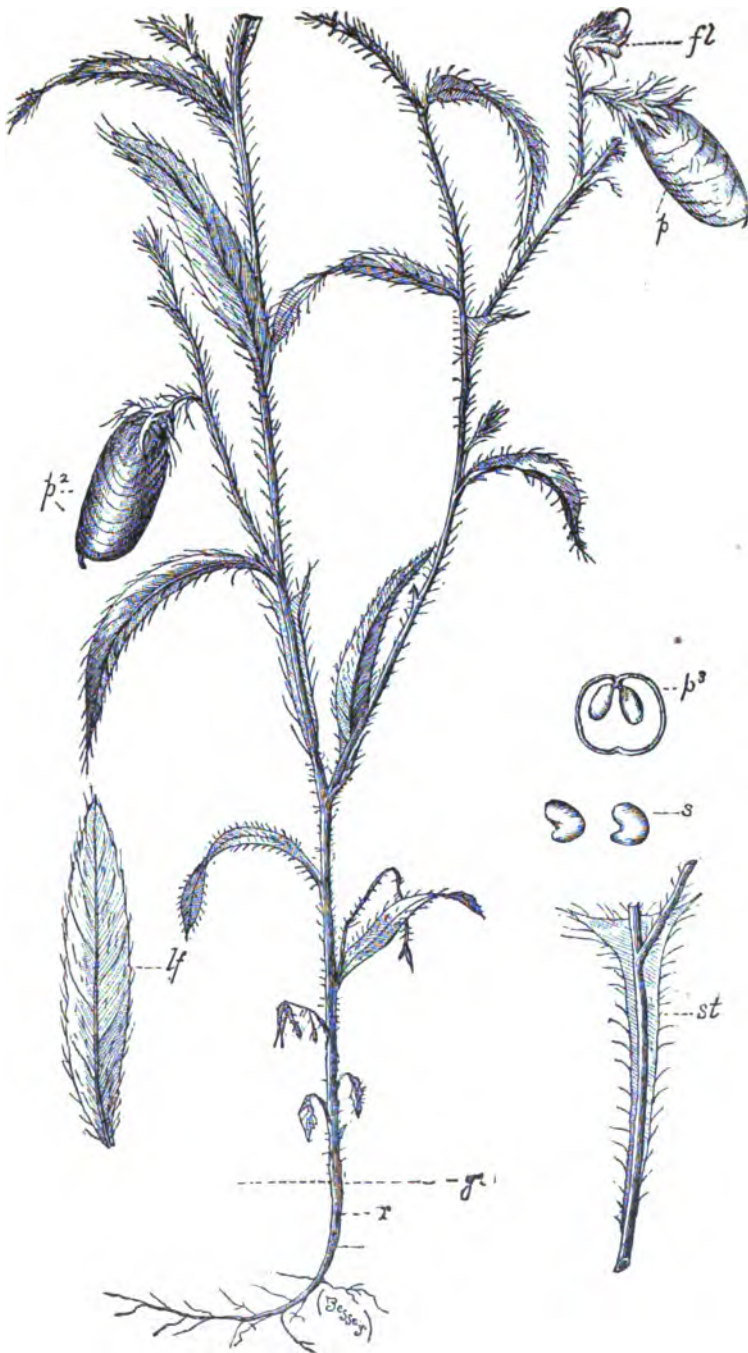
*State Agricultural College, Ames, Iowa.*

L. H. PAMMEL, B. AGR., EDITOR.  
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### LOCO WEEDS.

The word is of Spanish origin, and means "foolish." It is applied to certain plants, which when eaten by animals are supposed to cause a general derangement of the nervous and digestive systems. As stated by Dr. Stalker: "There is general loss of nervous power; the animal becomes dull, spiritless and inattentive. He wanders about in an aimless, half-dazed condition, except when searching for his favorite food, the "loco-plant." When ranchmen in the west speak of loco-plants, they generally refer to plants belonging to the genus *Oxytropis* and *Astragalus mollissimus*. In Iowa the Rattlebox (*Crotalaria sagittalis*) is the chief cause of "Loco" disease. In Australia species of the genus *Gompholobium* are troublesome to sheep, producing similar disorders.

All of these plants belong to the Pulse Family (*Leguminosæ*). Plants of other orders are said also to produce the same symptoms, especially *Corydalis aurea* var. *occidentalis*, a close relative of the "Bleeding Heart," so commonly cultivated in gardens. Both belong to the Fumitory Family (*Fumariaceæ*). Then, too, False Mallow (*Malvastrum coccineum*), a western plant, belonging to the Mallow Family (*Malvaceæ*), is said also to produce the "Loco Disease." The Clover Family contains few poisonous plants. Yet a few, like Calabar Bean (*Physostigma venenosum*) contain powerful drugs. The orders *Fumariaceæ* and *Malvaceæ* contain some plants which are medicinal, though not nearly such active drugs as the Calabar Bean. We can sum up



RATTLEBOX (*Crotalaria Sagittalis*). After Bessey.

by saying that "Loco plants" occur in various parts of the world, and of plants not closely related. We can reasonably state on our present knowledge that some of them are capable of producing disturbances in animals.

The subject of Loco Weeds and the injury to stock in various parts of the United States has of late attracted considerable attention. For this reason veterinarians have given the subject more or less study, while pharmaceutical chemists have endeavored to discover the cause of such peculiar physiological disturbances. Though many excellent papers have been published, there is still room for investigation. In a coming number, in connection with Dr. Ashworth, the anatomy of some of the Loco-weeds will be considered.

Two papers on the subject of Loco-weeds have recently appeared, one by Dr. F. B. Power and Mr. Cambier,<sup>(1)</sup> the other by Prof. L. E. Sayre.<sup>(2)</sup>

It may be well to briefly review some of the earlier literature in this connection. It is a rather difficult task to get at the earliest recorded mention of this subject since the earlier articles first appeared in newspapers. It will be sufficient to state that it has been known for a long time. The earlier contributions, made by Ormsby, Whipple, Rothrock, Vasey, Brewer and Watson, etc., were not based on experimental evidence. Nevertheless, these observers took some very careful notes on the conditions of the animals and the circumstances under which they became diseased. About this time chemists subjected some of the plants to chemical analysis, as well as noting the physiological effect of the plant when given to animals. Dr. Horatio Wood, Jr., obtained an alkaloid from *Sophora speciosa*, which he called *Sophoria*. In its action it resembled Calabar Bean. When given to a cat it produced profound sleep. The alkaloid is a spinal sedative.

Dr. Ott in 1882 made an experiment with *Astragalus mollissimus*. Its most marked physiological action seems to have been to decrease the irritability of the motor nerves, and also to greatly affect the sensory ganglia of the central nervous system with a tetanic action on the spine. "Has a stupefying action on the brain; reduces the cardiac force and frequency; temporarily increases arterial tension, but finally decreases it." The pupil is greatly dilated.

Dr. Mary Gage Day's paper shows quite conclusively that a decoction made from roots, leaves and stems of *Astragalus mollissimus* and *Oxytropis Lambertii* can produce death of cats, frogs and rabbits; and, as Prof. Power<sup>(3)</sup> says, the symptoms are in perfect harmony with those that occur in horses and cattle. The physiological effect on larger animals has been shown in the case of *Crotalaria sagittalis*.

Dr. M. Stalker<sup>(4)</sup> says: "When a strong infusion of the weed was given to an old horse with a stomach pump, in twenty minutes stupor began to ensue,

(1) Pharmaceutische Rundschau. Vol. IX., Jan., 1861, p. 8.

(2) Seventh Biennial Report Kansas State Board of Agriculture. Part II., p. 97.

(3) Notes on the So-called Loco Weeds. Pharmaceutische Rundschau, Vol. VII June, 1889, p. 136.

(4) Iowa State Register, Sept., 1888. Bulletin of the Iowa Agricultural College, Nov., 1884, pp. 111, 115.



the eyes were closed, the head was rested against the side of the box, the breathing became stertorous." "At the end of six hours the stupor began to disappear, the eye began to regain its brightness, and in another hour the horse began to eat." The following day the horse was given half the quantity. The symptoms began to develop much more rapidly, and it died in half an hour. A second animal was experimented with, giving less of the infusion: On the fifth day the characteristic stupor came on. "The animal rested its head against the box and slept while standing. The symptoms grew more marked till the thirteenth day," when the animal died. Dr. D. S. Fairchild and Dr. Milnes, who helped to make post-mortem examinations of five subjects, found great uniformity in the lesions presented. The animals showed hemorrhagic effusion in the fourth ventricle. The liver and spleen were very dense, while the intestines contained almost no blood. The stomach was very much distended.

Prof. Power and Mr. Cambier have obtained an alkaloid from the seed, which when fed (0.2 gramme) to a kitten, showed the following effects: frothing at the mouth and a profuse flow of saliva, which continued for about half an hour. The animal finally recovered.

The views in regard to *Astragalus mollissimus* are much more discordant than of the Rattlebox. President Ingersoll has obtained entirely negative results in feeding a large quantity (a decoction from twenty pounds) to a lamb about two months old. In addition to this experiment, referred to by Prof. Sayre, he states that Dr. O'Brien has also had entirely negative results.

*Chemistry.*—Miss C. M. Watson found a small amount of an alkaloid. The chemistry of some of the Loco Weeds, up to the last paper by Prof. Sayre, can be found in the paper by Prof. Power, "Notes on the so-called Loco Weeds."

The last paper by Prof. Power and Mr. Cambier, is a very careful piece of chemical work. One kilogramme of the *Astragalus* herb gave 0.2 of a gramme of the alkaloid, equivalent to 0.006 per cent. Nothing further was determined concerning its nature, as it does not appear to be especially active. An extract from one kilogramme of the seed of the *Crotalaria* gave 1.1 grammes of an alkaloid 0.036 per cent of the weight of the seed. It had a bitter taste, and seems to be more potent than that obtained from *Astragalus*. From these investigations the authors conclude that both the *Astragalus* and the *Crotalaria* contain very small amounts of toxic alkaloids, to which the symptoms of poisoning may be reasonably attributed.

Prof. Sayre, who has not gone into the chemistry in the paper referred to, however, reiterates what he has stated in several previous ones, that it is a question whether so small an amount of alkaloid should produce such grave physiological disturbances.

The fact should not be overlooked that locoed animals frequently con-

tain intestinal parasites. A few years ago Dr. M. Stalker(5) was sent out to investigate the matter of Loco Weeds for the Bureau of Animal Industry, and in a large number of *post mortem* examinations made, he found the bot-fly (*Oertrus equi*); and in all locoed animals of sheep he found the tape-worm. Concerning the conditions in the horse, he says: "I do not regard it as improbable, however, that the presence of the parasites had to do with the development of the abnormal appetite that leads the animal to crave what he would not otherwise touch."

Grasses, with few exceptions, contain no deleterious properties, but it seems that one of our western species of *Stipa*, *S. viridula* var. *robusta*, is a good Loco Weed. The effects on horses, and character of the plant are well described by an observing army surgeon, Dr. V. Havard,(6) The grass has received the common appellation of "Sleepy Grass." Dr. Palmer, who collected the grass in Coahuila, Mexico, in 1889, noticed that it was considered poisonous to cattle, horses and sheep, giving them a temporary fit of sleepiness. Dr. Havard says: "It would seem, then, reasonably established that this plant possesses narcotic or sedative properties, affecting principally horses, but also cattle and probably other animals; that animals are not fond of it, but eat it inadvertently or when under stress of hunger; that cases of poisoning occur, especially in the spring, when the radical and lower blades first come up; and that the active principle resides in these blades, and perhaps only during that season."

#### PROTEIDS AND THEIR ACTION ON ANTHRAX BACILLI.

Mr. E. H. Hankin (7) who has been investigating the effects of Proteids and Globulin on bacteria, has obtained some interesting results. The experiments were conducted with anthrax bacillus. The proteid extract obtained from the spleen of a rat showed that it had a very marked effect in checking development of anthrax. He has also shown that blood serum taken from a rat has a marked effect on the growth of the bacillus in the living organism, as may be seen from the following: Eight mice were inoculated with virulent *Bacillus anthracis*, taken from a fresh agar culture. Two mice received an injection of 0.01, the others 0.02—0.15 c cm. of the fluid containing the bacillus. Mice so treated remained alive, while two control mice inoculated directly with the anthrax bacillus died within eighteen hours. The author concludes that immunity of rats from anthrax and diphtheria is due to the production of a proteid substance which acts as an anti-septic. He also suggests that it may be possible to use this substance in preventing anthrax.

#### ACTION OF BLOOD ON THE ANTHRAX BACILLUS.

Dr. J. von Fodor (8) has been working out the bacteria-killing powers of

(5) Report Bureau Animal Industry, 1886, p. 271.

(6) Garden and Forest, Vol. IV., p. 111.

(7) Centralblatt für Bakteriologie und Parasitenkunde, Vol. VII.

(8) Centralblatt für Bakt. u. Parasitenkunde., Vol. VII., p. 758.

blood. In his experiments *Bacillus anthracis* was used, as it is par excellence a pathogenic microbe. The utmost precautions were used to remove the blood from pigs and dogs. It appears that arterial blood possesses the power of destroying bacteria more than the venous blood. This power is greater in fresh blood than in that which has been standing. An increase in temperature up to 40° c makes the blood more efficient in this work. There seems to be great variation with regard to the growth of the bacillus and different therapeutical substances which are used in cases of fever. After allowing the animal to be without food, some blood was removed, which was then inoculated with Anthrax bacillus, then 1 c cm. of Hydrochloric acid diluted with 150 c cm. of water was given the animal. A quarter of an hour later blood was again cautiously removed and inoculated as before. The same number of colonies developed in both, indicating that this substance does not check the growth of the organism. Quinine is of no decided value in checking the growth of bacteria, as in the last case blood was removed before the injection of quinine and several hours afterward. Sodium carbonate was decidedly beneficial in checking the growth of bacteria; so were sodium and potassium carbonate. This was true of all other substances which caused an alkalinity of the blood. The author concludes that through alkalinity of the fluids of the organism there is an increased power of withstanding the attacks of bacteria. He leaves it an open question whether this fact can be utilized in the infectious diseases in man.

#### EXAMINATION OF MILK FOR TUBERCLE BACILLUS.

The following method (9) has recently been recommended by a pharmacist in "Monitore dei Farmacisti." A drop of milk is placed on the cover-glass, to which is added two or three times its volume of a 1-per cent solution of sodium carbonate. The fluids are mixed with a platinum needle; then cautiously held over an alcohol lamp or bunsen burner till the substance evaporates. During evaporation the fats are saponified, leaving a thin layer of soap on the cover-glass. The remainder of the work is as is ordinarily done in staining tubercle bacilli.

#### UNDERGARMENTS AND MICRO-ORGANISMS.

Dr. Hobein(10) has examined various undergarments for micro-organisms. He finds that flannel, on account of its roughness, is especially favorable for the attachment of dust particles and the micro-organisms contained in dust. Micro-organisms are not so common on fine wool. The smallest number was found on linen and cotton; cotton is especially unfavorable for their attachment.

(9) Zeitschrift für Nahrungs mitteltele — Untersuchung und Hygiene, Vol. V., p. 48.

(10) Zeitschrift zur Med.—Beamte.

## OUR COLLEGES.

Iowa has no need to be ashamed of her medical colleges. Although all young, and most of them hampered by lack of funds, they are wide awake, intelligent and progressive. Even if some of them are not so elaborately equipped with laboratories, apparatus, hospital privileges, and the other paraphernalia of wholesale medical teaching, they have the advantage of that personal contact between professor and student, which Lawson Tait has just been lamenting as one of the lost arts of modern professional training. So important does he esteem it that he advocates a return to the old system of "apprenticeship" in the office of a practitioner in order to secure it. The following brief sketches of the history, personal and condition, of each of our four, prepared at our request by the professors whose names they bear, will, we think, be of interest to all :

### THE COLLEGE OF PHYSICIANS AND SURGEONS, AT KEOKUK,

Is one of the oldest medical institutions in the West, and celebrated its golden anniversary with great rejoicing this spring. This college was first organized at LaPorte, Ind., and in 1848 was moved to Madison, Wis., under a special charter authorizing it to establish a branch ; the branch, the Rock Island Medical School, was conducted by the same faculty, and soon overshadowed and killed the parent institution. In 1849 it was reorganized by the faculty as The College of Physicians and Surgeons of the Upper Mississippi, at Davenport; in 1850 it was moved to Keokuk and became the Medical Department of the State University, which connection was severed several years after. In its final home it has acquired a fine building, built for the purpose, and has the second best medical museum in the United States, the work of Profs. D. L. McGugin and J. C. Hughes, the elder, who are looked upon as fathers of the school. This college had had the usual changes of faculty due to death, but no radical change occurred until last year, when the trustees concluded that the faculty had become too much localized, and completely changed its *personnel*, drawing to the school specialists from all over the West. The school has always been thorough, and is now in the van of medical progress and imbued with modern ideas. It has over 4,000 alumni and alumnae (for it admits women), which insures its having large classes as long as it keeps up its standard.

WALTER G. BARR, M. D., *Secretary.*

### THE MEDICAL DEPARTMENT OF THE STATE UNIVERSITY.

The medical department of the State University of Iowa was established by the governing body in the fall of 1868, and a faculty appointed. Medical Jurisprudence, Judge John F. Dillon ; Chemistry, Gustavus Hinrichs ; Surgery, Dr. W. F. Peck ; Materia Medica, Dr. P. J. Farnsworth ; Anatomy, Dr. J. H. Boucher ; Obstetrics, Dr. J. F. Kennedy ; Diseases of Women and Children, Dr. J. C. Shrader. Rooms were prepared and the first term opened

October 24, 1870. Dr. Kennedy resigned and his place was filled by Dr. Shrader. The requirements for graduation were three years of study, including two courses of lectures of sixteen weeks. In 1882 the lecture term was extended to twenty weeks, with an optional course of three terms of lectures. In 1883, a preliminary examination was required. In 1889 the term was extended to six months and three courses of lectures made the rule. Dr. Boucher resigned at the end of the first term and his place was taken by Dr. E. F. Clapp, who resigned in 1888. Dr. L. W. Littig followed him. Dr. W. S. Robertson died in 1887, and Prof. Middle took the chair of Practice. Dr. R. W. Hill was appointed to Physiology, resigned in 1889, and was succeeded by Dr. J. R. Guthrie. Chemistry became vacant in 1887; the place is filled by President Charles A. Schaffer. In 1882 a fine spacious medical building was completed, capable of accommodating 300 students. Mercy Hospital has accommodations for forty patients. Dr. J. W. Dalby lectures on eye and ear, and has a very large amount of clinical material. A fine library is being accumulated. The first class, October 24, 1870, consisted of thirty-eight students, of which nine were ladies. The established rule of the University was, "all departments to be open to both sexes without distinction." The faculty generally were opposed to "mixed classes," and this was the feeling of most of the profession. Under the circumstances it was decided that no modification should be made in the matter of lectures, that all should listen to the same course. It was expected that this would discourage or drive away the women. When the time came for dissection the professor in charge formed a class of ladies and gave them a room by themselves. After the first evening they asked to be allowed to take their table into the common room, which was granted. The boys said the girls were afraid to stay alone with the corpse. An item went the rounds of all the papers in the country that in the Iowa Medical College classes of gentlemen and ladies dissected together in the common room, something never before done. This method of instruction was a solution of the whole question, and was never productive of any difficulty. It has since been followed in all the schools. Better order is preserved and better language used by professors and students; desirable improvements in every respect. About the same number of ladies have been in the class each year since. The degree of M. D. was conferred on three students, one being rejected. The class of the following year went up to 102, fourteen of which graduated. In the class of 1890-91 there were 150 students, twenty-two received the degree, a less number than usual, as it was the first class of three-year graded men. Over fifty have passed the second-year grade.

P. J. FARNSWORTH, M. D.

#### IOWA COLLEGE OF PHYSICIANS AND SURGEONS.

This college was organized in 1882, with a faculty of twelve professors. J. A. Blanchard was the first dean and W. W. Hale secretary. At the end of the third year Dr. Blanchard removed to Florida, where he died last November. Dr. Lewis Schooler, who was then professor of anatomy, was elected dean and has continued in that office ever since. Dr. Hale resigned in 1889 and Dr. W. S. H. Matthews, the present secretary, was elected to

that position. Dr. A. C. Simonton was the first professor of surgery and resigned in 1887, since which time Dr. Lewis Schooler has filled the chair to the satisfaction of both faculty and students. Dr. D. S. Fairchild, of Ames, has been with the school during its entire existence, and for the last three years has been professor of the Practice of Medicine and Pathology. Dr. E. H. Hazen has also been connected with the school from the start, and has held the chair of Ophthalmology. Dr. James Taggart Priestley was one of the founders and is now professor of Clinical Medicine, a chair formerly occupied by Dr. W. H. Ward, who now spends his winters in California and cannot be present during the sessions of the college. There have been at different times connected with the college Drs. C. M. Colvin, L. C. Swift, J. M. Emmert, of Atlantic, Robert McNutt, Robert Stephenson, of Centerville, J. F. Kennedy, the present secretary of the State Board of Health, H. Landis Getz, of Marshalltown, E. S. Lawrence, J. J. Steinriede and others. In 1887 the college became the medical department of Drake University, their former medical department having been fatally disabled by the medical practice act. It closed the most successful term in its history March 1, 1891. The University has purchased a building which will at once be remodeled to accommodate the needs of this department. The chemical and physiological laboratories will be equal to the best. The prospect for a large class is very flattering. This was the first school in the state to adopt a three-years graded course, and the wisdom of the movement has been more than verified during the last year. The faculty, with two exceptions, are all residents of the city, and men of experience.

LEWIS SCHOOLER, M. D., *Dean*.

#### KEOKUK MEDICAL COLLEGE.

The Keokuk Medical College closed its first scholastic year March 10, 1891. The number of students in attendance was 145, of whom 63 graduated. The faculty, composed of medical teachers of experience, provide an equipment that is unsurpassed in the West. While the needs of the medical teacher have been carefully provided for, in the most modern apparatus for illustration, the health and comfort of the students were deemed of sufficient importance to warrant the adoption of the best systems of heating and ventilation, and no expense has been spared in fitting the building with steam-heating apparatus, hot and cold water plumbing, and seating the beautiful auditorium with comfortable opera chairs. The second year opened on the 16th of March; a Spring reading and recitation course of ten weeks, established as an adjunct to the regular lecture session, which opens on the 22d of September. Already a large number of students have matriculated for the regular course. Ample clinical facilities are afforded in St. Joseph's Hospital, the staff of which is composed of members of the faculty. This college is a member of the American Medical College Association, an organization which has for its object a higher standard of medical education.

J. A. SCROGGS, M. D., *Secretary and Treasurer*.

THE Des Moines Valley Medical Society meets at Ottumwa Thursday and Friday, June 4 and 5. Dr. A. O. Williams is secretary.

## THE MUSEUM.

### A REALISTIC EFFORT.

This interesting specimen has all the ear-marks of a genuine antique, and would be unhesitatingly ascribed to the Dark Ages only it is known to be of Russian origin, which means practically the same thing:

"The doctors, who cynically undressed her and felt of her everywhere, and whom I had to thank and pay for these acts. \* \* \* It is not a question of loving or not loving them (the doctors). They have ruined my life as they have ruined the lives of thousands of beings before me. I conceive that they desire, like the lawyers and the rest, to make money. I have compiled no statutes, but I know of scores of cases where they have killed, now a child in its mother's womb, asserting positively that the mother could not give birth to it; now mothers under the pretext of an operation. No one has counted these murders, just as no one counted the murders of the Inquisition, because it was supposed they were committed for the benefit of humanity. Innumerable are the crimes of the doctors."  
—*Tolstoi, in Kreutzer Sonata.*

\* \*

### THE POTATO'S PLACE IN HISTORY.

It must be obvious at once to thinking minds like yours and mine, most proverbially candid and intelligent reader, that the potato has really played a very large part in the world's history—a part far larger than Marlborough's or Napoleon's; that it has more than once saved France or famished Ireland; that it has changed the whole face of smiling plains and spread cultivation up the arid slopes of barren mountains. For a single plant—and in all probability a single individual weed—to have done so much is at least something. And now that we stand within measurable distance of a great social revolution—the extinction of the potato—the time is surely come when those lowly tubers should no longer languish in unsung obscurity. The soul of Kew indeed is disturbed about the potato. Consultants are debating on its probable lease of life. It is yielding at last to old age and infirmities, and botanical authorities refuse to insure its enfeebled frame at average rates for the next fifty years.

\* \*

Paradoxical as it may sound at first hearing, almost all the potatoes in the world may be regarded with high probability as parts of a single potato-plant, and it is the gradual growing old of this one worn-out herb which now threatens the world with the approaching potato famine. Who is the potato, and where does he come from? All over the world in tropical, sub-tropical and temperate climates there grow various members of an uncanny and highly suspected family known to botanists as the solanaceae or night-shades. A more unpromising group than these doubtful herbs in which to

look for a human food-stuff can hardly be imagined. One of them is the well known belladonna or "deadly nightshade," another the mandrake—the mysterious, poisonous mandrake—and yet another, that curious plant, the apple of Sodom. It is true that the tomato, that gentle and harmless vegetable, is a solanum, but in spite of some few redeeming members the nightshades as a group must be distinctly regarded as a doubtful, unwholesome and ill-conditioned family. That from such a stock should have sprung the harmless, necessary potato—the pride of the new world and the joy of the old—is one of those profound mysteries of heredity which in the words of a once famous metaphysical inquirer, "no fellow can understand."

And what is the tuber which nature has succeeded in producing for a hungry world? Essentially and fundamentally it is not as most people imagine, a root, but an underground branch, bearing buds and undeveloped leaves on its surface which we know as *eyes*. And this leads us to the true point of view of the potato, as not a seed, but a part of the same individual plant as the mother that bears it. Gardeners call the potatoes they use for planting seed-potatoes, but the fragments are no more than a sucker or cutting is truly a seed; they are undeveloped branches of the old potato vine. The real seed, of course, is contained in the fruit or potato-apple. And the difference is not a purely technical one. On the contrary, it is being practically demonstrated at the present day by the gradual decay and constitutional feebleness of all potato kind the world over. For lack of frequent; healthy crossings the entire vitality of the race has been slowly dissipated, the entire stock has grown old together, and we stand face to face with the awful possibility of a potato-less universe.—*Cornhill Magazine*.

### STATE ITEMS.

SINCE its first meeting on July 8, 1886, the State Board of Medical Examiners has issued certificates to 3,871 applicants, unconditionally rejected 175, and compelled 86 to come up for examination. Of this latter number about 50% ultimately passed, some of them after several trials. One persistent individual failed twice in succession, left the state for two years, came back and failed twice more, went away to a recognized college and graduated; came back and passed on his diploma in triumph. Who says that Iowa has no attractions as a field for practice?

THE case of the "Iowa Eclectic Medical College" of Des Moines vs. the State Board of Medical Examiners has been decided in the district court in favor of the board. The "college," however, has appealed it to the supreme court on the grounds that the board has exceeded its powers and that the law is unconstitutional. In the meantime their diplomas will still promptly fail of recognition by the board, so that the extent of their "pernicious activity" seems likely to be small until the appeal is decided upon.



Dr. David McDill, a leading practitioner of Burlington, Iowa, died May 6, 1891. His illness dated from the appearance of la grippe one year ago. He was born in Hamilton, Ohio, in 1832. His medical education was obtained in the St. Louis Medical College, from which he graduated in 1855. He served as assistant surgeon to the Eightieth Illinois, and afterward as surgeon to the Eighty-fourth Illinois Volunteers. Located in Burlington, Iowa, in 1878, where he was engaged in the active practice of his profession until the occurrence of the illness that terminated his career. He was a member of the American Medical Association, the Des Moines County Medical Society, and also of the Iowa State Medical Society.

It is rumored that Iowa is to be blessed with an addition to her quartet of medical colleges. The Sioux City Normal University (which has recently offered to locate a branch in Des Moines, if given sufficient inducements) is about to establish a Medical Department. It claims to have already secured, with an energy characteristic of that end of the Missouri Valley, subscriptions to the amount of \$25,000 for this purpose.

THE second regular meeting of the Capital District Medical Society will be held at the court house, Des Moines, Thursday and Friday, June 11 and 12. The energetic secretary, Dr. W. C. Pipino, has secured the promise of some fifteen interesting papers, and the crowning feature is to be a banquet at the Kirkwood. The date has been postponed one week, so as to avoid conflict with the Des Moines Valley, at Ottumwa.

THE Medical Association of Northwestern Iowa met at Sioux Rapids, May 5. The officers elected were: President, Dr. Beem, of Rolfe; Vice President, Dr. Hammill, Marathon; Secretary, Dr. De Vine, Sioux Rapids; Treasurer, Dr. McAllister, Spencer.

WE are grieved to report the death of Dr. J. O. Sanks, of Woodward. The deceased was one of the oldest established practitioners in that part of the State, and was widely known and honored.

PROF. CALVIN, of the Natural Science Department of the State University, has been appointed Superintendent of the new Histological Laboratory in the Medical Department.

OUR late President, Dr. Middleton, and President-elect Dr. Jenkins, both attended the late meetings of the A. M. A. and the Association of American Colleges.

DR. NANCY M. HILL, of Dubuque, attended the Washington meeting.

A CHAIR of Pathology and Bacteriology has recently been created at the State University, and funds appropriated for laboratory and other purposes. The incumbent will be elected at the June meeting of the Board of Regents.

THE friends of Dr. Peck, and their name is legion, will be glad to hear that he attended the late meetings of the American Medical Association, and the Association of Medical Colleges, at Washington, taking part in the proceedings of both with almost his usual energy and brilliancy.

DR. H. R. PAGE, of Des Moines, has just returned from a trip to Wash-

ington to attend the meetings of the A. M. A. and the American Academy of Medicine.

OUR members will be grieved to hear that one of the oldest and best known of our ex-Presidents, Dr. Scofield, of Washington, is reported seriously ill.

THE many friends of Dr. Hinsey, of Ottumwa, will be sorry to hear that he is reported to be in an extremely critical state of health.

THE Seventeenth Annual Meeting of the Central District Medical Association will be held at Carroll, Tuesday, June 9th.

MRS. DR. HUNTSMAN, the widow of our late respected ex-President, has just recovered from a severe attack of bronchitis.

DRS. MCCLURE and Kinnier, of Dubuque, sailed from New York May 8th, for a visit to the medical centers of Europe.

WE hear that Dr. Caldwell, of Adel, of Senatorial renown, is thinking of removing professionally to Des Moines.

DR. W. H. WARD, of Des Moines, spent the past winter in California to the great benefit of his health.

DR. A. C. WILKINS, of Oskaloosa, is about to take a vacation trip in the direction of Tennessee.

DR. J. H. MCCARTHY is attending the Post-Graduate School in New York City.

DR. R. C. HOFFMAN, of Oskaloosa, has removed to Salt Lake City, Utah.

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### PUFFS FROM THE DOCTOR'S CIGAR.

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I wonder what most people think "out-doors" was intended for, anyway? To be avoided, one would think, judging from the way they appear to shun it on every possible occasion. The business man comes down to his hurried breakfast, takes his carriage at the door, or the street-car as near the door as he can possibly get it; hurries into his stuffy, half-lighted office, dashes out for thirty minutes at lunch time, packs himself into another air-tight receptacle for his homeward ride to dinner. After dinner he sits and smokes in his library or goes to a theater, in either case spending the evening in air which has forgotten the feeling of sunshine, and whose very touch would make the leaves of the forest shudder and droop.

\*.\*

With all our self-conceit we are physically only a higher order of cabbages after all, and dependent upon the very same conditions for health and growth. We human flowers need just as much sunlight as any geranium or nasturtium, and pine just as certainly if we don't get it, and yet in how many of our living rooms will flowers bloom? With all my love for flowers I can hardly regard them as better than vampires or cannibals when I see them crowding into the only sunny windows, greedily monopolizing all the fresh

air and sunlight in the room, while the little human plants struggle along in the shade. Just think of their basking all day long in the sunlight in magnificent crystal-roofed and sided apartments, while the dear little human flowerets are cooped up in some brick-walled cell upstairs, which at the best may have a few panes of glass looking towards the south. Keep our flowers where we keep our children and any florist can foretell the result.

\* \*

It is always interesting to get glimpses of "ourselves as others see us":

"As stated in a late article in an American journal, the mammary gland in the female is no longer to be regarded from its functional, but merely from its æsthetic side—indispensable to a due conception of beauty, but useless as a milk producer—the cow or goat, but more particularly the inventor and vendor of various infant's foods, having taken its place."—*Allan Jamieson*.

We fear there is a good deal of truth if not much poetry in the Glasgow man's view of the subject. But there is, I think, one ray of light in the picture, and that is that æstheticism and her toady fashion are really coming to our aid for once. That the demands of fashion that a dress must be cut so as to display glistening arms and shoulders, and moulded so as to develop the curving lines of the bust, reprehensible as they are in some respects, have done much to encourage and actually produce that smoothness of outline and symmetry of form which can be secured only by an increase of physical vigor. No mere deposit of adipose will fill the bill either, unless it be underlaid and reinforced by the elastic grace and supple strength of muscle.

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## REPORTS OF CASES.

We are especially anxious for contributions to this department, and cordially urge all our readers to send us notes of their experience, no matter how brief. "Original articles" may be more or less worthless; records of actual cases are always of value.

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### PUERPERAL ECLAMPSIA.

These cases present little that is new or unusual, but similar symptoms and different terminations render them of interest.

*Case 1.*—Mrs. R., aged 18; primipara. Had severe gastralgia for twelve hours, convulsions then supervened and seven occurred in four hours. I saw her recovering from the seventh. She was unconscious, pulse 130, face and extremities oedematous, or slightly dilated, labor pains very light. The attending physician was using chloroform and had given morphia (one fourth grain) hypodermically, also a large dose of bromide of potash, chloral hydrate and tr. of veratrum viride. Before I had finished examination the eighth convulsion occurred; this lasted ten minutes. When the spasms subsided eight minims of Norwood's tr. of veratrum were administered hypodermically. In half an hour pulse was reduced to 35 per minute. Uterine contractions became stronger, and in three hours a living child was born without assistance. Strange to say there was not blood enough lost during labor for twelve hours after to stain the labia. Jalap was now given

freely. The pulse had remained slow until four hours after delivery. It then rose within half an hour from 80 to 120 per minute. The ninth and last convulsion then occurred. After the injection of five minims of tr. of veratrum, pulse ran down to 50 per minute and did not again reach 100. The cathartic produced free evacuations which were encouraged for several days. Recovery was rapid and complete.

*Case 2.*—Mrs. L., aged 23; primipara. During seventh month of pregnancy had severe attack of gastralgia, which was checked by morphia. Labor and convulsions commenced in fifteen hours from cessation of gastralgia. In two and a half hours I saw her in sixth and last convulsion; pulse 140. Slight oedema of extremities, os dilated to size of half dollar. Elaterium had been given by her physician. Veratrum viride was advised, and seven minims of Norwood's tr. given hypodermically. Pulse fell to 48 per minute in a short time. Labor was slow, and after six hours had to be terminated by forceps. No more convulsions occurred. Free use of cathartics and diaphoretics was advised, but the treatment was not followed. Six days afterward face and extremities were bloated, bowels constipated, skin dry, tongue dry and coated, urine albuminous and not exceeding four ounces in twenty-four hours. She could be aroused with difficulty, coma rapidly developed and she died within twelve hours.

\* \*

#### CARVING EXTRAORDINARY—ASEPTIC HEALING.

On the night of February 5th I was called to see James Brown, who had been "cut up" in a fight. I found the patient in a state of "shock." He had lost a large quantity of blood and was almost pulseless. I administered brandy and belladonna and waited about twenty minutes for the medicine to be absorbed before I did anything further. I found a cut extending from middle of forehead to left ear, exposing the temporal artery; a second cut on the right side from middle of lower jaw across the neck in a semi-circular direction to superior border of scapula. This cut exposed external carotid artery and severed a number of small muscular branches which I closed by torsion. A third cut extended from left clavicle across shoulder and down the back to the last lumbar vertebræ. This cut exposed the ribs, lumbar vertebræ and scalpula; another cut about half as long was external to and parallel with this one. A fifth cut extended from spine of right scapula across the back to lower border of ribs on left side. This last cut also had another external to parallel with it, and about half its length. The seventh one was across palm of left hand, severing the flexor tendons of second and third fingers. In addition the patient had a bullet hole through his right hand. All together the cuts measured eight feet, less two inches. I cleansed the wounds *thoroughly*, washing them with campho-phenique, using no water for any purpose about them. Introduced my sutures about one half inch apart after all oozing had ceased. Covered the wounds with absorbent cotton wet with campho-phenique. All the wounds healed without suppuration. On the fifth day I removed every other suture and the rest on eighth day, supporting the parts with adhesive straps. Discharged my patient on the tenth day, "somewhat disfigured, but still in the ring," with nothing but slight red lines to show where the wounds had been.

S. W. CLARK, A. M., M. D.

The above reminds me of a similar result on a very much smaller scale in my own recent experience. Mr. M., a student, about twenty years of age, in "monkeying" with a 32-calibre revolver managed to discharge it with the muzzle resting in the palm of his right hand. The ball passed through the third interosseal space about the middle of the palm, emerging about one and one-half inches above the knuckles. I saw him about thirty minutes after the accident and found that the bleeding, which had been pretty free, had almost entirely stopped and both openings of the wound were filled with firmly clotted blood. As I could detect no sign of bone-damage I washed the hand with a solution of listerine in boiled water, carefully avoiding any interference with the closing clots, dusted the wounds with iodoform and enveloped the whole hand in a carbolic-gauze dressing soaked in listerine and covered by absorbent cotton. The dressing was renewed next day, and on the third day both orifices were glazed over, but as there was some redness and puffing at the back of the hand I removed the surface of the dorsal scab and dropped a few drops of peroxide of hydrogen upon the clot, covered with a pledget of gauze dipped in the same, and applied dressing as before. Next morning the puffing had entirely disappeared, and as the only trace of the injury was a couple of dry, firm scabs in palm and dorsum, I took off the dressing and dismissed the case. He was shot on Sunday morning, and when dismissed on Thursday noon could use his hand freely without either pain or tenderness, except just over scabs. "Drainage" was carefully avoided and everything left to nature. W. H.

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### N<sub>2</sub>O—NOH.

"Man born of woman is of few years and full of bowel-trouble."—*Solomon, Revised.*

\* \*

I think many of our examining boards have met this school-boy at a somewhat maturer stage of his development. He was requested to briefly name and describe the divisions of the human body and the contents of each. "The body is divided into three cavvities, the head, thoracks and abbdomen; the head contains the brains, when there is enny; the thoracks contains the lungs, liver and diafram; the abbdomen contanes the bowils, wich is five in number, *a, e, i, o, u,* and sometimes *w* and *y*."

\* \*

No less an authority than Dr. Hughlings Jackson is responsible for the following: At a professional dinner party in London the conversation turned upon the subject of the remarkable development of specialism in the past few years. One of the gentlemen present declared that it had reached such a pitch that every possible portion or subdivision of the human body had now doctors and hospitals devoted solely to its treatment, except the umbilicus. He was, however, compelled to withdraw even this exception on being promptly reminded—we suspect by Dr. Jackson—that there were in that very city several *Naval* Hospitals.

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# THE VIS MEDICATRIX.

THE JOURNAL OF

THE IOWA STATE MEDICAL SOCIETY.

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AUGUST, 1891.

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## INTESTINAL DISEASES OF INFANCY AND CHILDHOOD.

WARD WOODBRIDGE, M. D., WAUBECK.

By far the most common of all the diseases to which the infant and child are subject are those of the alimentary tract. These are various and many, though it is possible that useless refinement has crept in, in the classification, especially in the French writings, making the nomenclature prolix, complex, and often misleading. But the tendency of modern medicine is to simplify rather than complicate.

Alimentation is the important thing in the management of an infant, and is the first thing that ought to be inquired into when a case is presented to us for treatment. What kind of food is given? If the mother is nursing the child, her condition should be thoroughly investigated. If she is constipated (they generally are) that condition ought to be corrected. Some of the tonic anti-constipation pills should be followed up until not needed. Inquire into the kind and quantity of food she eats, whether indigestion exists in any form; in short, the mother's whole condition should be overhauled, and anything that could have any possible bearing on the illness of the child should, as far as possible, be corrected. If artificial feeding is resorted to, the kind, quantity and quality should be accurately known. The kind of food is sometimes a question very difficult to determine, but my own experience is that good milk—fresh, sweet and clean, is the very best kind of food to be used under nearly all conditions and circumstances. There are many kinds of good food, prepared, that do very well, and in one case of my own it was necessary to rely almost entirely on Mellin's food before I could control the irritability of the intestines. Still, I have

settled down to using a formula of the following kind, to be varied as necessary :

Milk, 3 parts.

Cream, 1 part.

Lime water, 1 part.

Boiled water, 2 parts.

Sugar of milk, 1 part.

If constipation exists, add a little bi-carb. of soda. I sometimes direct oat-meal boiled, and the water strained off and used, instead of simple boiled water. If it is suspected that there are any impurities in the milk I have it subjected to a sort of sterilizing process by putting it in a fruit jar, placing in a common steamer, over a kettle of water, and steam for thirty or forty minutes ; then place in cold water and keep until used.

It is always well to inspect the feeding-bottle, and it should be washed out each time after using, with a little soda or mercury solution, and then thoroughly steamed. There is more mischief lurking in a sour, unclean nursing-bottle than any place else in the world, to the infant, and I believe and insist that any nursing woman should thoroughly wash off the nipples each time after nursing the child, so that no decaying salivary products will remain to produce a sore mouth.

As to quantity of food for an infant, it is difficult to say just how much should be taken. But one thing is certain : Any food not properly digested and absorbed may undergo fermentative changes and come away in green mucous discharges half-digested, thus acting as an irritant. Most authors agree that 2, 2½ or 3 pints of food daily will carry a child along and nourish it well until such time as it demands food from the table, such as the family eat. It may then be allowed to have a portion of such food so long as it remains well, but whenever any symptoms of intestinal irritation manifest themselves the diet should be restricted to milk and rigidly adhered to. Enough nourishment should be given to keep the child up as far as possible, and no more, so that the intestinal tract may rest as much as possible.

A non-inflammatory diarrhoea is the most common form of intestinal disturbance we meet with. A looseness of the bowels, the alvine discharges being mixed with a sort of watery discharge, of frequent occurrence, yet the child preserves its rotundity of figure, appetite continues good, if any pains are present they are of a colicky nature, no elevation of temperature ; such may be called a true non-inflammatory diarrhoea. What are the causes operating to produce such a condition of affairs ? They may be many, but particularly here are the sour nursing-bottles. If the milk is acid the bowels are irritated, active ; or hyper-peristaltic action comes on, unloading the bowels of their contents, throwing off half-digested food. Over-feeding may result in irritating the follicular arrangement of the intestines by a



portion remaining undigested ; its undergoing fermentative changes irritates the follicular and glandular apparatus. They enlarge, pour out too great a secretion, and the intestines are emptied of their contents. That this is so has been demonstrated over and over again. In a case of my own, a young infant, with from six to ten movements daily, no elevation of temperature, pulse not very fast, finally died. A post mortem revealed no inflamed condition, but the intestines were studded with tumefied follicles. Although this child nursed its mother, I believe that its digestion was not very active ; she gave great quantities of milk, and too large an amount for its feeble digestion, and this being constantly taken, kept the follicles in a constant state of irritation, so that alimentation was at first disturbed, then lessened, and finally anæmia carried the child off without a true inflammation ever having been present. There is a pathological condition operating sometimes to produce a non-inflammatory diarrhœa in an indirect manner, which is situated in the trophic centers, seeming to be in the great sympathetic ganglia. It seems to be a condition of malnutrition. The tissues being unable to take up nourishment, a sense of hunger impels the child to eat, the glandular elements are feeble, absorption is slow, and finally the intestinal tube rejects the contents, and they pass off in a half-digested state. Such children have an old look that is odd. There is a slightly shrunken appearance, though it is not the greatly drawn appearance of cholera infantum, but more the shrinking appearance of old age.

Another source of non-inflammatory diarrhœa is intestinal worms. While they are not generally of any great importance, or of very frequent occurrence, yet they ought to be looked after as a possible cause, if for no other reason than to be protected against the criticisms of the good mothers in Israel whose worm talents are usually of a very high order.

The diagnosis of this trouble is not generally very difficult. We are rather prone to jump to the conclusion that we have an inflammatory trouble than otherwise, especially if the diarrhœa is preceded by a convulsion, when in fact the diarrhœa in such cases is generally salutary, being an effort on the part of the bowels to get rid of certain offending substances. The exact variety of the non-inflammatory diarrhœa it is sometimes very hard to determine, requiring time and patience. The prognosis of these cases, that is, the every day cases we meet with, is generally favorable. So long as the rotundity of form is preserved there is not much danger.

In the nervous form, where the trophic centers are disturbed or not developed, the prognosis is not good; it is generally best to tell the people that they will probably not raise the child.

The treatment of the mild cases is very simple : find the cause of the irritation, whether it be the mother's condition, the quantity or quality of the food, and correct and remove it promptly. It is worse than useless to resort to medication until this has been done. Then cleanse the intestinal

tube with some mild aperient, such as castor oil or sulphate of magnesia with syrup of rhubarb ; asepticize it with full doses of bismuth or salol, and help the enfeebled digestion with pepsin. In the trophic form keep up nutrition by frequent feeding, baths, massage, and any other means in our power.

It may be well before passing to the graver forms of intestinal troubles to speak of the constipation of infants and children. This condition is sometimes exceedingly obstinate, and interferes greatly with the nutrition of the child. It is a very frequent thing to find the bowel of an infant plugged just above the anus with a hard fecal mass, while the stool above is soft, and when once started a good, free motion results. In such cases medication is not required, the introduction of a soap suppository being sufficient to stimulate the bowel to action. In these cases the mother should be directed to use a little vaseline after each movement to prevent excoriation of the anal parts by the hardened mass. The stimulation should take place at a regular time so as to form the habit of a stool at certain times. Next to the ordinary laxatives I think the glycerine suppository, used daily, holds first rank. A full suppository containing 50 to 75 grains of glycerine may be divided up according to age of child. I have used them largely, and with good satisfaction ; this is especially the case in older female children passing from childhood to young girlhood.

Of the inflammatory types of intestinal troubles by far the most common is entero-colitis, or "intestinal inflammation of infancy." J. Lewis Smith designates it as the most prevalent fatal infantile malady, being the great summer epidemic of the cities, and prevailing largely in the country. The causes operating to produce it seem to have special reference to hot weather, although we sometimes see a case of it in the winter. One of the worst cases I ever saw recover was a winter case, being the result of a long ride in an open sled, after being kept all winter in a highly heated room. But that hot weather acts as a special agent in producing it is shown by the statistics, the epidemic beginning in May, reaching the maximum in July and August, then gradually declining until the cool weather, when the cases assume the sporadic form. How can hot weather influence it? is a very interesting question. The activity of heat in producing fermentative changes is very great. As the agent in producing entero-colitis, it acts upon food of all kinds, breaks up some of the elements of its constituency, and certain harmful agents are produced whose presence does not immediately declare itself, as in the case of the production of tyrotoxin in ice cream and milk, ptomaines in nitrogenized decay, etc. Milk in hot weather becomes rapidly acid, the child is hungry, and unless the milk is too sour, does not rebel against it. If the mother is nursing it, and is about her household duties, she may become over-heated. Suppression of certain of the constituents of normal milk take place, directly from the action of

the heat, or the heat may act indirectly by so reducing her milk-producing powers that too much colostrum is present, and possibly other harmful agents, ready to irritate a system whose powers of resistance are already enfeebled by the action of heat directly upon itself. In all this combination of the circumstances attending the action of heat, with carelessness on the part of those using artificial feeding, and of mothers in properly caring for their own persons, lurks the danger.

Now as to the mechanism of the action of these vitiated products to produce this peculiar inflammatory trouble. It is fair to presume that acting primarily by their presence, and not indirectly, they first irritate the tract above, producing the usual introductory diarrhœa, the irritation grows more intense in its downward movement until it reaches the site of the ileo caecal valve. Here all the irritating substances are driven down, and the bowel at this point receives the force of the vermicular movement as well as the irritating products of the canal. The nutrition of the mucous surface is impaired, too much blood is determined to that point, and the inflammatory process is fully established, the amount and kind determining the gravity of the case. In about 90 per cent of the cases this is the seat of the trouble, and of course the inflammatory action may extend from this point.

The stools may vary in color and consistency, sometimes being of a greenish character, at others of a grayish cast; sometimes mixed with a little blood and mucous, which is said, although I do not know of my own knowledge, to indicate rather the predominance of colitis over enteritis.

Mechanical congestion of the lungs is likely to take place, both from the recumbent posture and vital failure. A rolling of the head with that peculiar cry, once heard never to be forgotten, indicates cerebral complication, adding greatly to the gravity of the case and complicating its management. The duration of the disease may vary from two days to three weeks.

It may be well at this point to speak of the peculiarity of the cerebral complications so liable to occur in a case of entero-colitis. As shrinking of the tissues of the whole body takes place, it is fair to presume that the cerebral substance does not escape; indeed we know this to be so. As the brain shrinks both the arachnoid space and the ventricles must become filled with fluid. The exosmosis of this fluid is greatly favored, first, by the removal through the shrinking away of the brain substance of the normal amount of resistance; second, by the weakened and relaxed condition of the vascular system. With this there is sluggishness of the circulation and slight passive, meningeal congestion. Then I have always maintained that in addition to these two peculiar anatomical conditions, there was and is present a reflex irritability from the seat of the inflamed surface in the bowel, through the sympathetic system to the cells of the brain substance

itself, and the combination of all these conditions gives rise to the head trouble so common in this form of intestinal disease.

In two cases of mine both were paralyzed on one side for some time, which must have been due to the amount of hydrocephalus present. They both recovered.

The general principles of treatment are simple, but capable of endless modification. Food in small quantities at regular intervals, the thirst quenched with pure cool water, with a little good brandy added if needed. Thorough ventilation should be secured and pre-digested foods are often of great value. For medicinal treatment clear the bowels with laxatives and follow with pepsin, bismuth, salol or salicylate of soda, listerine or mentholene, depending chiefly upon chloranodyne for opiate effects when desired. The high temperature may be reduced with antipyrine or phenacetin, given cautiously. Baths of tepid salt-water are always in order and should be part of the daily toilet of the child.

The cerebral complications should be promptly met with the bromides and chloral, but I do not think that depleting measures are ever really admissible or of benefit. Sinapisms will accomplish all that can be done in the way of revulsion, and supporting treatment throughout is the great desideratum.

Cholera infantum is perhaps the most rapidly destructive intestinal disease to which the child is a prey. It, like its predecessors, is essentially a disease of the summer months. I believe that the primary disturbance is a systemic poison, introduced into the system through impure food, or from unhygienic surroundings, upon which the heat acts to produce harmful agents which, entering the system, cause a reverse action to take place in all the cellular elements of the body. Instead of construction being in advance of destruction, the action is reversed, and destruction takes place so rapidly that the child seems to literally liquify. This reverse action extends to the vessels and glands of the absorbent system, exosmosis ensues and the intestinal tract becomes a sluice-way through which the child's life is rapidly poured out. What the poisonous product is that plays such havoc it is impossible to say. Of course the mind turns at once to cheese-poison, but that could scarcely account for the trouble when children take the breast. Still, when we know, as said in the beginning, that over-heat, over-work, personal neglect, etc., produce an over-amount of colostrum in the milk, and that the milk from apparently healthy cows sometimes brings on a milk sickness, it is not difficult to believe that mothers' milk may at times contain the irritant. The symptoms are familiar to you all, and the prognosis very grave and uncertain. The treatment must be prompt; any vacillating measures are sure to be disastrous. Reduce the temperature with antipyretics, stimulate vigorously and push bismuth with the astringents and pepsin to stop the watery discharges.

Fight the case while it lives, for I have seen success come when hope had long been abandoned.

DISCUSSION.

I. S. BIGELOW, (Dubuque): *Mr. President*,—There are some points in this paper which I wish to call attention to; points on which I do not think he laid particular stress. His paper is an excellent one. One point is the use of large doses of bismuth in all these cases. By this I mean ten or fifteen grains of subnitrate of bismuth to a child from three to five years of age, and repeated in the beginning every three to four hours. Another point is the sterilizing of milk. I have used the sterilizer of Dr. Seibert, of New York. It is cheap, and can be procured with a set of bottles, for \$1.25. In this way you avoid the trouble of cleaning the nurse-bottles each time. Having a set of bottles for twenty-four hours the mother is more liable to clean those bottles properly, if cleaned once a day, than if it has to be done each time after nursing. I think the intervals of time between the feeding should be regular, and the quantity should be gauged by the weight of the child rather than by its age.

DR. I. W. SMITH, (Charles City): *Mr. President*,—I would like to hear something said about milk-peptonizing by pancreatin in alkaline solution. It is something I have resorted to to secure nutrition in obstinate cases of indigestion.

DR. SILL, (Strawberry Point): *Mr. President*,—Man that is born of woman—and most men are—I have long since been convinced, is of but a few days and full of bowel trouble. I don't believe the day will ever dawn when infants will be wisely reared until their mothers will realize that their infants are more valuable than an ordinary pug-dog. If a mother will take care of herself and nurse her child, I think the good Lord's plan is as good as anything we can adopt. I would rather have it than bismuth, muriatic acid or pepsin. I think the good old plan is the better way.

DR. SKINNER, (Cedar Rapids): One point I would suggest is that the nipple should be kept constantly in soda, or something of that kind, when it is not in use. Another is, the hygienic surroundings of the child. I believe that more good may be accomplished by taking a child that is suffering from indigestion and putting him into a buggy or carriage and taking him into the woods twice a day than all the medicine in the house. A child will become restful and go to sleep; will take its food and will not throw it up; will become nourished; will be happy and contented, and get along without medicine if he can be placed under such surroundings.

DR. LA GRANGE, (Marion): In all these cases the proper treatment is to remove the cause, the first step. Now if the milk or the diet is the cause, I think it would be adding fuel to the fire to continue that child on that kind of diet. The plan that is laid down by Dr. Seibert, of the New York

Polyclinic, is this: He claims that all these disturbed digestions and trouble with the intestinal tract are caused by a germ. He takes off all milk; he forbids the mother to give that child any milk for say twenty-four to forty-eight hours, perhaps longer. Feed the child on barley gruel—a gruel rather made of barley or oatmeal—and begins his treatment by giving that child a small dose of calomel, say 1-20 grain, repeated every two hours until it has taken probably half a dozen doses; that followed up by a dose of castoria or castor oil, and that followed up by a little muriatic acid, bismuth and pepsin. Now, I think this a very rational treatment to remove the cause. There is such a thing as starving by over-feeding. We, in our experience, have met those kind of cases. You ask the mother if she feeds her child and she says: "Why, of course, I feed my child. My child gets something to eat every half hour." The great trouble with the child is that it is over-fed. Now the indications for treatment of that child are to shut off the supply; to remove the cause and feel your way along; don't need much medicine in such cases. As Dr. Skinner has just well said, I think we can accomplish more by looking after the surroundings of the child than we can with our large doses of medicine.

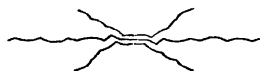
DR. GEO. F. JENKINS, (Keokuk): I regard this as a very valuable paper. I can endorse it heartily, especially as to treatment. In the management of children we cannot treat them all along the same line. There is no fixed rule to raise babies by. One believes in sending them to the woods, and another believes in giving medicine, and both are good in their place. Different cases need different treatment. I shall take great pleasure, when it comes out, in reading the remainder of the paper, because it shows in its details, in the great care with which he goes into the diet and everything, that he would be the kind of a man to give proper instruction. He gives it in a plain way; a practical way, so that anyone can get hold of it. I would not be afraid to call that kind of a doctor; would be glad, in fact, if my child should fall into the hands of such a person. It shows that he has paid attention to the little things in regard to diet, clothing, hygienic surroundings and so on, and it is the little things that count.

DR. CRAWFORD: *Mr. President*,—I was pleased with the paper of Dr. Woodbridge, not only because it is a good one, but because he is a personal friend of mine. We were raised together and educated together. I presume if he had had time to finish reading his paper he would have brought out the question of irrigation. I think the principle of "flushing the sewer" is one of the best methods of treatment which we have. I mean by that to use the purgative doses of calomel, which have been mentioned, to wash out above and then make a methodical use of warm water with a syringe, irrigating the bowels two or three times in every twenty-four hours, keeping that up until the condition subsides.

DR. A. J. HOBSON, (Bristow): *Mr. President*,—I wish to endorse the

sentiments of the gentleman who last spoke, in regard to "flushing the sewer." I have found it a most excellent plan, and his method of rectal injection is something I am very much interested in. Where we have relaxation we can use injections of warm water, and if necessary make them slightly astringent by either a mild solution of alum or zinc sulphate. This plan has been very beneficial in my hands. And in regard to nursing the infant, I certainly disagree with the gentleman. My experience has taught me that after a child becomes eight or nine months old it is a hard case to treat if the mother is nursing it, from the very fact that generally after nine months we expect the mother to have her menses. During that time we expect the milk to be depreciated in value, and, very often, absolutely injurious to the child. And, furthermore, mothers of the working class, especially if they live in the country, do not take proper care of themselves. They will go about their work and hurry up to get time to nurse the baby, and sit down probably when they are in a state of perspiration, even of nervous excitement from the over-exercise, and nurse that baby. The result is, we certainly have a positively injurious condition.

DR. WOODBRIDGE: *Mr. President*,—I forgot about the 20-minute rule. If I had been in a hurry I could have got it in in the 20 minutes. The idea of hygienic surroundings was especially dwelt on in the latter part of the paper. You see the idea is, that a child hardly ever falls into the hands of a physician until it is sick, and when it has got down with the cholera infantum you can't put it in a buggy and take it out in the woods. The hygienic surroundings must necessarily be confined to the house. It ought to have plenty of fresh air, and I insisted in the latter part of the paper that a child, under my care with bowel trouble, should have a daily bath of tepid water and massage. The muscular kneading over the abdomen, rubbed as tenderly as could be, yet it should be done thoroughly. In regard to sterilizers, I would say they are a good thing. I have used many of them, but you see the fruit jar and the steamer are at hand, whether the patient be high or low, rich or poor. Whenever the child falls into my hands I use the fruit jar and steamer if I have not the sterilizer. In either case the milk should be thoroughly sterilized and the feeding looked after, for putting unsterilized milk into an inflamed bowel is like adding fuel to the fire.



SOME SUGGESTIONS UPON THE NATURE AND CAUSATION  
OF ECZEMA.

WOODS HUTCHINSON, A. M., M. D., DES MOINES.

It would be a well-nigh hopeless endeavor to attempt to say anything fresh about eczema. One might about as well attempt originality in discussing the contents of Scarpa's triangle, or to add another zygapophysis to the dorsal vertebræ. Gallons of ink have been spread upon acres of paper in the description of its chameleon-like variations; the discussion of its relations to age, sex, diet, clothing, and the stages of the moon, would fill volumes, while the list of substances recommended in its treatment is almost co-extensive with the Pharmacopeia; in fact the drug which is not suspected of being useful in this connection is apparently yet to be discovered. The very voluminousness of its literature, however, is proof both of the interest of the subject and the delightful uncertainty which surrounds some of its important relations, and will even serve as an excuse for presenting the following brief suggestions, on the principle that a drop or two more in the bucket can hardly make any very grievous addition to its weight or bulk.

Rating it by the frequency of its occurrence, eczema certainly is entitled to a considerable share of the literature of disease, for it has probably one of the widest known ranges, both racial, personal and geographic of all pathological processes, and attacks old and young, rich and poor, vigorous and feeble, with an impartiality which is positively refreshing by comparison with the strong tendency displayed by most other diseases to hit a man only when he's down. Jamieson estimates that it makes up or enters into one half of all skin affections, while such is its infinite variability that Buckley has found no less than one hundred and fifty different Latin terms applied to describe its changing moods, "rubrum," "madidans," "sicca," etc. A disease of marked individuality, and yet having no single symptom which is absolutely diagnostic, and no microscopic appearance which can be called characteristic, it occupies a unique position in nosology. It is not my purpose to discuss this interesting process as a whole, but merely to submit for discussion two conclusions in regard to its nature and causation, with the reasons which seem to me to support them.

These are, first, that eczema is merely the simplest, most rudimentary form of chronic inflammation of which the cutaneous tissues are capable. Their easiest mode of expressing resentment at outside interference, the "retort direct," or "you're another" of their never-ceasing dispute with their environment. In other words, that the uniformity of the disease-process in different subjects is due to the similarity in structure and reaction of the tissues in which it occurs.



Second, that the variations of the process are due principally to the infinite variety of causes which may excite it, which in the great majority of cases will be found to be influences entirely external to the body. Of course I am aware that part of these conclusions would be accepted by nearly all dermatologists, part vigorously disputed and part generally rejected; and that there is little new or original about them except their form, so that to save time I will dispense with the quotation of authorities and proceed to submit the considerations which seem to justify them, leaving you to decide upon their validity.

First, and most important of all, is the fact that the pathological changes of eczema, either microscopic or clinical, are in no essential respect different from or other than those of a simple inflammation (dermatitis), except in the time required for their production and the modifications incident to their more gradual development. An eczema differs from a burn as the decay of a prostrate monarch of the forest in its native glade differs from the blazing and crackling of a log upon the hearth, in its time-relations only, the processes and their products being otherwise identical. A "sunburn" or scald reaches at one bound the "erythematous" or "vesicular" conditions respectively, for the attainment of which in an eczematous fashion, the repeated application of less active irritants for days or weeks would be necessary except that, of course, the more rapid process produces less stable results, and the more sudden change of tension in the nerve fibrils gives us pain in the place of itching. The stages and forms of eczema depend principally upon the degree or length of persistence of the irritation. Should the irritant be a feeble one, or but recently applied, we find only a general hyperaemia and swelling of the epidermal tissues, with a sensation of heat or slight itchiness, the "erythematous" stage or form, let the irritation be a little more vigorous or prolonged and minute disseminated foci of exudation spring into being all over the rete mucosum and the "papular" stage is developed; another turn of the screw and each papule becomes rapidly swollen with serum, and bulging in the direction of least resistance, pushes up the epidermis, forms a vesicle ("eczema vesiculosum") which possibly ruptures ("E. madidans"); let the pressure rise a little farther, or the resisting power of our patient's tissues be diminished, and rapid death of the cellular elements in the vesicles occurs and we have the pustular form, with its resulting crusts. At any stage of the game on the withdrawal of the exciting cause, the hyperaemia may disappear, the papules shrink up, the vesicles dry down into scales or the pustules into crusts, and a new term is needed, "squamosa" or "sicca." On the other hand should the disturbing influence persist so as to keep the skin in a state of continual ebullition, the whole thickness of the corium becomes involved and thickened, nutrition of the superficial layers is inter-

fered with, cracks form, the epiderm becomes horny or discolored, and "eczema chronicum" is in possession of the field.

The second basis of my conclusion is that a genuine and characteristic eczema can be produced upon perfectly healthy skins solely by the application of external irritants; in fact, a large and influential body of authorities declare that all eczemas are so caused. A familiar instance is the eruption following exposure to "poison ivy," an eczema of the eczemas, with every characteristic symptom in perfection, while it is hardly necessary for me to refer to the whole classes of intertrigos, "occupation" and "clothing" eczemas as cases in point.

The third consideration of interest in this connection is the fact that eczema is an accomplishment of which the human skin has by no means a monopoly, but that the epiderms of all the domestic animals and of some plants are capable of identical or analogous reaction; in fact that it would almost seem to be one of the common heritages of all living surface-tissue. Its earliest analogue is probably the exudation of gummy or resinous fluids upon the stems or leaves of certain plants and trees for the healing of wounds, protection against fungi, or the entanglement of insect enemies, and I can hardly resist placing in this connection the remarkable pouring out or flowing out of protoplasm from the surface of an amœba by which it surrounds and encloses foreign bodies coming in contact with it, and if available, digests them.

If these analogies be admitted they would give to eczema a rational standing-ground as a reversion to a mode of action which was normal and useful in our remote ancestors, a relation which I believe will be traced in most of our distinctive disease-processes, in the near future; in fact, it seems almost safe to assume it already in gout, cancer and tubercle. Higher up in the plant scale we find a disease (the details of which, together with other interesting information, have been most kindly furnished me by Prof. Pammel of the State Agricultural College), which I am tempted to claim as a vegetable eczema, in "apple-scab," caused by a fungus, *Fusicladium dendriticum*. The presence of this parasite upon the bark provokes an exudation of cellular material from the cambium layer ("papular stage") which goes on to the formation of a layer or patches of cork ("horny stage"), and thus protects the softer tissues from its ravages. In potato-scab we have another and similar process. Another fungus, *Ozonium auniecomum*, produces a "knotty" eruption upon the roots of the cotton-plant.

In the domestic animals eczemas are quite common (although perhaps not as frequent as upon the bare skins of the genus humanum), "mange" in dogs, "grease" in horses, and "foot and mouth disease" in cattle, being among the most familiar forms of its occurrence. I am informed by my friend, Dr. A. B. Morse, D. V. S., that the morbid process is practically identical with that in the human subject, except that the pustular stage is

more commonly and readily developed (as of course is the case in the hair-covered portions of the human epidermis), and that the best modern authorities regard almost every form of it as due to some germ or parasite; in other words to almost the only "chronic irritant" from which the animal skin is not protected. Partial exceptions to this rule are the vesicular eruptions which often constitute the first stage of "collar-galls" or "saddle-galls" in horses, and appear on the ears of dogs when chained up during the summer time, both of which are "friction eczemas," due in one case to the pressure of harness, and in the other to the combined influence of flies and scratching.

The fourth consideration bearing upon the inflammatory nature of eczema is the number of other diseases in which it constitutes the bulk of the morbid process. Scabies is but an eczema produced by the presence of the acorns, or the sulphur applied to kill it, plus the actual burrows of the insect, and scratch-marks. Pediculosis, or phtheiiasis, is constructed on the same plan; the Seborrhœas are probably at bottom eczemas, and I think we should be justified in declaring that the actual pathological changes in the great group of Trichophytoses, or Ringworms, are eczematous, as the term "eczema marginatum," so generally applied to *Tinea cruris*, implies. In fact, the easiest form of popular revolt against the tyranny of any parasite would seem to be an eczema.

Another straw pointing in this direction is the marked extent to which eczema prevails during infancy and childhood, when the poor little pink epiderm is struggling to adjust itself to the trying change from the nicely-warmed water-bath in which it has been floating to the flannels, soaps, and changes of temperature and moisture of an unfriendly world. The innumerable caravan of "red gums," "prickly heats," "teething-rashes," "heat-rashes," "lichen scrofulosorum," etc., are all of this nature, and Bulkley, in his paper before the Berlin International Congress, gives tables showing that nearly 20 per cent of all cases of eczema occur during the first five years of life, which is probably decidedly under the actual mark, so many cases at this age being too slight to be considered worth while treating.

If eczema be simply a dermatitis, we can readily understand its well-marked preference for flexor surfaces, and especially flexures, as not only is the skin in these situations thinner, more delicate, and hence more easily injured, but from the formation of the parts, perspiration, dust, and foreign materials generally are much more apt to accumulate there, to say nothing or the mutual heat, friction, or pressure of the opposing surfaces.

The so-called internal and predisposing causes of eczema seem—so far as our knowledge of this somewhat mysterious subject goes—to fall into line with this hypothesis. They can, I think, nearly all be divided into two main classes; those diseases or diatheses which throw too much vicarious excre-

tory work upon the skin, or fill its vast mesh of blood-vessels with blood loaded with irritating nitrogenous substances, such as rheumatism, lithæmia, diabetes, and disturbances of the metabolic functions generally, and those states or influences which depress the resisting power of the skin, together with that of all the tissues of the body, such as exhausting disease, chlorosis, lactation, over-work and over-confinement, thus rendering it more vulnerable to external attacks. The first class, and it is by far the larger, is apparently simply a case of response to local irritation from within instead of from without, although the addition of the latter is probably necessary to actually provoke an outbreak. The second class would, roughly speaking, seem to obey the general law that all morbid action may be initiated either by increasing the external pressure of the environment, or by diminishing the internal resistance of the organism. Of course this explanatory suggestion is of the crudest, and only applies to a very few of the difficulties of this vast and misty field, but it seems not wholly irrelevant, so far as it goes.

If the probability of my first general conclusion is admitted, that of my second—that the variations of the disease are due to variations of the cause—is practically implied, for if the essential morbid process be a simple, primitive, inflammatory change, then it will be modified mainly according to locality, intensity and duration, all of which are determined by the nature of the influence which produces and perpetuates it. The chief value of this principle is to give us a basis of classification, and it seems to me that if we can succeed in dividing the mighty hosts of eczema, never so roughly, upon these lines, that the classification will have at least the merits of simplicity, clearness, naturalness and practical working value. The mere location of a given case carries with it its prognosis and indications for treatment. With your permission I will submit a rough outline of such a classification, with a few illustrative cases. First, and far the most important, we have

*Class 1.*—Eczemas produced by influences entirely external to the body, divided into (a) climatic, (b) chemical, (c) mechanical or "friction," and (d) mycotic or parasitic.

*Class 2.*—Eczemas produced by bodily influences or properties acting from without; examples—intertrigo, eczema of the arms, groin, or back of the ear.

*Class 3.*—Eczemas produced by bodily influences acting from within—(a) locally, as gout, rheumatism; (b) generally, as lactation, anæmia.

Of course it must be admitted that not even these rough divisions are based upon absolutely hard and fast lines; that not only will class I contain nearly 80 per cent of all cases, but that its form of causation will be present in some degree in nearly all those falling under the other two classes. Indeed it is hardly possible to conceive of an eczema occurring without some

external provoking cause, and yet there are many cases in which it is so palpably merely the last straw, the feather's touch, which precipitates the explosion, that we are justified in ascribing them rather to the pre-existing, predisposing conditions of the tissues. On the other hand there are cases to which the classification will hardly apply, since the most careful investigation will fail to discover in them any apparent assignable cause whatever; and yet it is a significant fact that "idiopathic" eczema is becoming an extinct species almost as rapidly as is "functional" disease of the nervous tissues.

I will now briefly present a few typical cases under each subdivision which will illustrate my general drift better than pages of explanation.

As an example of the first division of class I, "climatic" eczemas, we have

*Case 1.*—A gentleman about 46 years of age, who ten years previously had emigrated to Iowa from the north of England. Within a few months of his arrival here he began to be annoyed by attacks of acute vesicular eczema, starting upon the lower eyelids, and spreading to the cheeks, eyebrows, and even parts of the neck and jaw; also occasionally appearing between the fingers, and on the back of the hands. These attacks nearly always appeared to follow some unusual exposure to sun or wind, and would last from three to six days, causing great discomfort from the itching, burning and swelling of the parts. He was in perfect health, and had never suffered from any similar affection in England. No treatment seemed to have any appreciable effect except the use of tar water, which, freely applied, promptly relieved the itching, and caused the eruption to subside in a few days, only, however, to reappear upon the next exposure. After three years' residence here he returned to England for a short visit, when, to his great relief, the trouble left him at once, and did not reappear until after his return to Iowa. From this time the affection seemed gradually to subside, and in two or three years' time almost ceased to trouble him, only reappearing in a mild form after any unusually prolonged exposure to sun or wind.

*Case. 2.*—A healthy young girl, about eighteen years of age, complains of an eruption, which appears upon the back of her hands and wrists whenever they are specially exposed to the sun or wind, as in boating or fishing. The eruption annoys her greatly by the itching and burning which accompany it, although it only lasts a few hours after cessation of the exposure. It consists of a large number of scattered papules, elevated, of bright red color, which give the whole skin a distinctly roughened or "shotty" feeling to the touch.

*Case 3.*—A college student, about twenty years of age, called my attention to an irritable condition of the skin of his nose, which he stated had appeared since he left his home in Florida, three weeks before. On examination, I found a small "butterfly patch" upon the sides of the nose and cheeks, of minutely vesicular, elevated, scaly eruption, which itched and

burned slightly. On questioning him, he recollected that he had been similarly troubled on coming north on a visit on two occasions before, but had never thought of a climatic origin. I simply advised a little care as to soap, washing, etc., and in the course of a few months the eruption ceased to annoy him, and has now almost entirely disappeared.

Cases of eczema, due to chemical cause, or "poison ivy" of various kinds, are so common and widely accepted as such, that the division needs no illustration, and for the same reason, in this brief sketch, a single case under the third or "mechanical" division must suffice.

*Case 4.*—A healthy young merchant, of about twenty-five, who, in response to the usual question in an examination for life insurance, replied that he had no "eruption on the skin," except a "spot" on his right leg. This, on examination, I found to be a small, elevated, roughened patch of scaly eczema, about the size of a nickel, just over the shin bone, about three inches below the knee. He said it had been there some months, and itched occasionally. I was quite at a loss to account for its singular position and shape, until I found that it was exactly at the spot where the clasp of a somewhat elaborate hose suspender rested upon the skin. There was no similar eruption upon any other part of the body, and the surrounding skin was perfectly healthy.

Under the mycotic division I have to report :

*Case 5.*—A boy of about nineteen, who presented himself on account of "spots on his skin." The whole surface of his body was dotted over with round or oval patches, of elevated, scaly eruption of a yellowish color, from one-half to one inch in diameter. He stated that it had commenced about one month before upon his chest, and gradually spread. Only the covered parts of his surface were affected. There was little or no itching. His general health was excellent. The eruption rapidly and completely disappeared under the use of a two per cent resorcin ointment.

*Case 6.*—A young mechanic, of vigorous physique, who came to be relieved of a severe "chafing and scalding in the crotch," as he termed it. An inspection discovered a patch of eruption, roughened, elevated, scaly, and of a deep, almost coppery red color, with well defined margins, occupying the perinæum, and extending down the back of the scrotum and inside of the thighs. The condition had existed several weeks, and defied home treatment, the itching and burning now being extremely severe. Although half dreading to apply any stimulating application to such an intensely irritated surface, I gave him a two per cent resorcin salve, with a simple dusting powder of oleate of zinc and starch. The irritation subsided at once, and the eruption soon followed suit.

The mere mention of Class II, the eczemas of the flexures, such as the arms, groin, or back of the ears, is sufficient to call up a host of cases in your own recollections ; and the same is true of the first division of Class

III, the eczemas of gouty, rheumatic or diabetic subjects, which brings me to my last division, those due to the effect of general depression upon the surface tissues.

*Case 7.*—H. C., a conductor, aged thirty-nine, as the result of a collision sustained a severe compound fracture of the bones of the left leg, with extensive lacerations. After a prolonged effort to save the the limb, suppuration set in, and it became necessary to amputate above the knee. His general condition had, however, become greatly depressed, and continued so; the wound healed extremely slowly; a distinct anæmic heart-murmur developed; puffing occurred under the eyes, and the stump became œdematous and waxy-looking, easily pitting on pressure. Just as this depression was beginning to disappear, a well-marked eczematous eruption appeared upon the upper and inner part of the swollen stump, well above the wound, and out of reach of the discharges. Under the use of zinc dusting powders, the itching was relieved and the eruption scaled off and subsided, to reappear at intervals, each time in a milder form, until his general health was practically restored. In another of my cases an eczema broke out upon the surface of an extensive scar, consequent upon severe laceration and crushing of the parts, and ran a most obstinate course. As an illustration of overwork as a contributory cause, I may mention the case of a journalist, who assures me that loss of sleep or over-strain of any sort, always promptly aggravates an eczema from which he has suffered slightly at intervals for some years past.

I had hoped to present other similar cases, but my time limit and a decent regard for your patience warns me to conclude.

#### DISCUSSION.

DR. LAGRANGE: *Mr. President*,—I was very much pleased with this paper of the doctor's on this subject. I think that we, as general practitioners, know less about cutaneous diseases than any other diseases that we have to come in contact with. I only wish to make a few remarks in regard to the treatment of the sub-acute form of eczema, and I wish to give you a history of a case that has recently come under my observation. An old gentleman, living nine miles out in the country. His son came to my office saying his father was suffering from a breaking-out upon both of his arms, and from the history of the case I judged it was a case of eczema. He only wanted medicine. I think I prescribed a treatment of hypo-sulphite of soda, and an ointment of oxide of zinc and salicylic acid, the solution to be applied first freely, and when dry to make an application of the ointment. I think I filled that prescription three or four different times. The case would get a little better, and then slip back. I informed the son that it was necessary I should see the case, and that I wanted to apply a paste that I used in these cases of eczema. The paste is composed of ( I do not know what its name

is) oxide of zinc, starch and salicylic acid. [Ihle's Paste.—Ed.] I think the other ingredient is gelatine. The mixture is dissolved or liquified in the water. With this remedy I called on the patient, and found that both arms and forearms were completely involved with this eczema of a sub-acute character, and of course with the annoying symptoms such as the doctor has related. I dissolved this paste, and with a paint brush painted it thickly all over both arms, like a painter would paint a house. Then I took absorbent cotton and picked it to pieces, and stuck it all over his arm, completely covering the paste, then I nicely enveloped the arm with a roller bandage, and instructed the patient to wear that one week, not to disturb it; after which time I made another visit, and removed the dressing, and noticed that the case had improved finely; the symptoms were improved. In another week's time I made another visit, and the patient was cured, and has remained cured. This was used in sub-acute eczema. It is the best remedy I ever used, and the formula I think is oxide of zinc 2 drams, starch 2 drams, salicylic acid 20 grains, gelatine (I think) 4 drams, dissolved in water, and then when in liquid condition applied on the part the same as though painting it on; then put the cotton bandage on, and then the roller bandage. In my hands this has succeeded in curing more cases than any other remedy.

DR. HOBBS (of Iowa City): *Mr. President*,—The excellent paper read by Dr. Hutchinson leaves us but little opportunity for discussion. If I understand the aim of his proposition—to establish the relationship between external irritation and the reaction that takes place on the surface of the body—I think at the present time we must all accept the proposition. The influence of a multitude of external causes, not the influence of a single specific cause. I might relate an incident of the case of a lady who was a great sufferer from eczema, as having some bearing upon the paper of my friend, Dr. Smith. She had suffered from repeated attacks of eczema for nearly a year. At the time that I saw her she had just paid a drug store bill to the extent of \$150, for medicine that had been applied to her arms and her shoulders. In this case it was my belief that the eczema was certainly due to external irritation, and discovering no other source I said she should wait for a couple of weeks before making any application. She omitted the use of drug medication, and at the end of two weeks I found the eruption almost entirely gone, and recovery rapidly followed.

"Twenty years ago we were steering well and steadily toward great principles on the preventive as well as the curative side of medicine; then there crept in the wild enthusiasm for bacteriological research—research good enough in its way as a piece of natural history and as disclosing some curious vital phenomena developed under morbid states of the organic structures and the blood but a positive insanity when accepted as the one absorbing pursuit, restoring the humoral pathology, ignoring nervous function, leading to Babel with its utter confusion of tongues, and separating for a time our modern art of cure from the accumulated treasures of knowledge, wisdom and light of over two thousand years."—*Dr. B. W. Richardson.*



## THE ABUSE OR MISUSE OF DRUGS.

BY JOEL W. SMITH, M. D., CHARLES CITY.

In this practical age the physician can not stand still, even if he chose to do so. He must keep pace with the wheels of human progress, or drop out of the race. Medical practice in the early ages is shrouded in mystery, superstition, and the prevailing ignorance of such periods. At times the priests held sway as physicians, and the barbers acted as surgeons.

We talk of and believe in heredity as an important factor in the animal kingdom. Closely allied to this is the inheritance of ideas. From force of habit people swallow drugs, doctors prescribe them in great variety, their confiding patients swallow them, also largely from force of habit. If all this is the use of drugs, where is the abuse or misuse, or in what does it consist?

If in the midst of counselors there is safety, and confession is good for the soul, let us suppose this meeting to be turned into a kind of love feast or confessional as to our knowledge and experience in drug medication. This proposal is to offset the well known fact, that so many more successful than unsuccessful cases are published by most physicians. The truth is what is wanted—or a part of it—as to the abuse of drugs in the profession as well as outside of it.

Every physician knows that health is often greatly impaired, ruined sometimes, and life lost or shortened by the bad effects of drugs—their use often begins by prescriptions of medical men. That is then an abuse or misuse of drugs. So must be considered the use of most of the proprietary medicines, much of the advertising of which ought to disgust intelligent people.

Injury to health is the greatest factor in the abuse of drugs. Others are, unnecessary expense of drugs—a large item to poor people; a too blind use of drugs often leads to the neglect of other important aids by doctors, nurses and friends; it tends to perpetuate the fallacy of drug treatment. Then there is the dread or well known prejudice, especially of cultured people, against drugs, supposing doctors will prescribe them, and such dislike is so strong that valuable time is often lost in calling a physician.

Pharmacy has recently made great advances, and is properly regarded as the handmaid of medicine. The improvements in pharmacy are not all an unmixed good. The many elegant, new and improved older preparations are a temptation, especially to young practitioners, to prescribe an unnecessary amount of drugs, that only benefit the manufacturing and dispensing parties. How can we use a less amount of drugs? Added to the habit of doctors and people, is the pushing of drug preparations by pharmacists and manufacturing chemists, some of whom act as though the

chief use of physicians was to order their preparations for the sick. Neither are they always content with that, but urge their goods upon the public independent of doctors. Vast amounts of money are now paid foreign companies for patented concentrated preparations.

The doctor who does not prescribe drugs, or furnish drugs for nearly all his patients, could hardly live in most communities. It is thus a case of bread and butter. The chemists, pharmacists, most of the people, and a majority of the medical profession, would be against him ; so what can a doctor do but prescribe ? This condition can only be corrected by educating the rising generation as to these errors, as we are now doing in the public schools, in many states, about the effects of alcoholics and narcotics.

In how large a proportion of cases of sickness — acute and chronic — is any drug treatment necessary ? After forty years of professional experience I feel safe in saying that a majority of cases, under average conditions and the care of a physician of average ability, would not need drug medication, but be better without it. Then why use them so generally and universally ? Sufficient answer has already been given. Physician and patient should learn, if they have not, that there are other methods to heal most ailments of body and mind.

A good workman can often do good work with poor tools, but seldom can a poor workman do good work with the best of tools. It is so with physicians. The abuse of drugs has done great harm. It will be so in future. We often hear of the poisonous effects of opiates and many of the newer drugs. The grave probably kindly covers more such, while the wrecks of the non-fatal cases are numerous.

The habitual use of any drug is injurious. The daughter of a school-mate became a confirmed sulphur-eater. It began, mixed in syrup, when a young girl ; was secretly continued until past the age of twenty, when she died — the bones being strangely softened. How often do mercury, iodine-bromides, cocaine and many other potent remedies leave their marks upon mind and body !

Positive and expectant medicine have long been on trial. The question is still an open one. In typhoid fever there are abundant and reliable statistics to prove the water treatment superior to any and all drug treatment. Older physicians at least have known of cases where free but forbidden drinking of water, for part of a day or night, has hastened the turning point of convalescence — the medicine perhaps omitted — and the doctor at his next visit gave his "last medicine" credit for the rapid change towards recovery ! Still, medical journals continue to publish new specific drug treatment for typhoid fever and other diseases !

Aversion to excessive drugging leads many to employ physicians that are supposed at least to use the smallest amount of drugs, if not the least nauseous ones. The children are said to take such better, while faith-curers,

spiritualists, christian scientists, etc., use no drugs. Are not they often successful, and sometimes where regularly educated physicians have failed? What, then, is the cause? It is the action of mind upon mind and body, but not always easily explainable.

Psychological medicine, hypnotic or other treatment of diseased nervous conditions, may yet include more than has yet been dreamed of by some learned — if not wise — physicians, in their love of the too exclusive drug treatment. Drugopaths may not be an inapt name for such in the future.

Public sanitary measures, as state medicine, chairs of hygiene, public health associations and the like, all tend to check the use of drugs and the demand for physicians' services, and they are mostly in charge of physicians. Where can we find another instance of such disinterested professional work?

In preventing disease and restoring the sick to health, among the many things preferable to the use of drugs can be mentioned abstinence, the careful selection and taking of food, quiet, rest of body and mind, pure air, pure water — externally and internally — heat, cold, the equalizing of temperature, graduated exercise, entertaining companions, pleasing and profitable occupation, and all healthful psychological influences to place the patient in harmony with his or her surroundings. When the most of the things enumerated are favorable there can hardly be any need for drugs.

The best doctors are those who help the sick to get well, and teach the public how to keep well, though such are often poorly appreciated. Would that more were teachers of health rather than worshipers of drugs.

The constant prescribing of drugs must tend to lower the physician, as he well knows that in many cases drug treatment is not indicated. If done, it may be said it is to satisfy the patient; but who helps to make and keep up such a habit for drugs, and yet knows better? A *placebo* is often proper, but, like the use of drugs, terribly abused. Can a conscientious physician constantly act the hypocrite without danger to his moral nature?

Abernethy once said that most patients desired an impossibility; that he should reconcile health with excesses.

The successful practice of medicine requires some knowledge of human nature, of almost every department of learning, and the more the physician knows, the more he sees that needs to be known, to qualify him to give the greatest value to his patrons. Only as the people demand the higher class of professional ability, can they expect it, and that only will effectually weed out incompetent physicians.

The evolutionary process will be hastened by higher medical education. If no less is taught about drugs, there will be more about other and more valuable things, and thus aid to form a public sentiment that can tell the difference between the well-educated physician and the mere doser of

drugs. Superficially-educated men are usually the greatest users of drugs. Some of them hardly get beyond that. The human system is too wonderful and complex for those who can only catch the spirit of "drugs and dollars, dollars and drugs." He is the great physician who is not content to always follow the old beaten track, but rises to the occasion in each case by promptly using all the means within his power to save health and life.

Nature's resources are almost unbounded. A medical friend said, "she was a big doctor." The physician's office is to aid nature. Does giving drugs do that as surely and safely as many other things within reach? The Chinese emperor seems wiser than our more enlightened nations, as to employing physicians—to keep him well. The advances in antiseptic medicine and surgery, and in bacteriology, while not ignoring drugs, have greatly simplified treatment, and greater things are to follow.

It is of interest to note the usual difference in amount and kind of drugs prescribed by different physicians, and the same one at different ages. The young doctor evidently has zeal as well as knowledge, and believes in "doing something" for his patients; so a large amount of drugs is ordered, to the joy of the pharmacist, if not always to the patient's advantage. In middle life there is less of drugs; in later life frequently none at all. Is the change a sign of wisdom or the decay of mental powers? "Old men for counsel, young men for war," also raises the question of the relative value of the fresh or advanced views of the recent well-educated graduate, and the greater experience of the educated physician of advanced years.

There is a fitness of things in having this subject presented by one old enough to take a fairly retrospective view, who, perhaps, has little to lose by doing, from love of his profession and this society, what he considers his duty. It is said to be our friends who kindly tell us what they consider our faults. That is my position. I try to-day to warn the younger brethren to reform some errors while it can be done with credit and advantage.

The number of patients that have been treated without drugs, and with very little, has been so large and the result such that I feel that I have a right to be heard, and, like Garrison, that I must and will be heard on the subject. Physicians who almost always give drugs, can hardly have an idea of the course that nature, when not interfered with, would pursue in the case; but they can rest assured that the good dame is always at work in her silent way, alone with her own forces, to remove or cure injuries and diseases; while the conceited or ignorant prescriber of drugs claims the credit of the cure, and takes the fee.

My protest is not against the judicious use of curative means of any kind, but the injurious and fatal effects of their abuse. It is not enough to do as the fathers of medicine did, much as we respect them. The world moves, and so must physicians use more common sense, be more practical, or, as the phrase is, "they will get left."

Physicians should be proud of their high calling, jealous of its reputation. Their work is such that few others can correctly judge of it. The good or beloved physician is a perpetual benediction, and though in a hamlet will not have lived in vain, as will be revealed at the great Day of Account.

#### CONCLUSIONS.

1. While the use of drugs is often a great boon to suffering humanity, experience and observation prove that the too free use of drugs is directly injurious, and often leads to the neglect of other more important and safer means of treatment.
2. Excessive use of drugs is a kind of *ignis fatuus*, or false light, the following of which is injurious to the profession and dangerous to the public.
3. While we would not wholly discard the use of standard drugs, neither should too much importance be attached to them.
4. Enlightened public sentiment is essential to restrict the unnecessary use of drug medication.

#### DISCUSSION.

DR. SCHOOLER, (Des Moines): *Mr. President*,—The doctor evidently has the true idea of the purpose of a paper to be presented to a medical society, namely: to elicit discussion. The days, however, for Nihilism in medicine have practically passed. Fifteen years ago the spirit of the doctor's paper would have been in the fullest accord with the prevailing opinions at that time; but since the work of Bartholow, and others, in which was given the death blow to Nihilism in medicine, Nihilism has gone into politics, and is nowhere to be found in the medical profession. Now, I imagine there is a good deal more comfort needed by the stomach doubled up from eating green apples, than a lecture on the non-use and abuse of drugs. I think the victim would prefer an emetic, although it would make him a good deal sicker, to have the pain suddenly abated. Christian Science is mentioned in the paper, and a large number of faith cures, etc. I believe that to-day, the general opinion of the profession is, that there is more reliance to be placed in the scientific administration of drugs than ever before. In the early days of medicine the administration and abuse of drugs was, no doubt, very great, because of the empiricism that prevailed at that time. Chemistry, pharmacy, and the method of preparing drugs were then in their infancy, and to the alchemists and to the diviners and astrologers belonged largely what was afterward made the foundation of the practice of medicine. It detracts nothing from their value, however, to say that a large number of the most efficient drugs and remedies we now have were discovered by accident or by empiricism, or by persons that never have had

any connection with the learned professions. The profession, however, has always been upon the alert, and the regular profession has not been bound by any theory, or circumscribed by any preconceived notions, to reject anything that was of practical importance. Hence, no difference whether a remedy or drug was discovered by a learned or unlearned person, when it was found to be efficient it was adopted as the property of the profession. Now, through all this confusion, the science of rational drug treatment has been developed.

DR. JENKINS : *Mr. President*,—I am very glad that Dr. Schooler has made the talk he has. I think that is the proper sentiment of the profession to-day. The paper, while it is intended for the profession, might, if it went out without being challenged in any way, be quoted, and look rather badly for the medical profession. As a doctor stated to-day, we are on higher grounds because of the investigation of the germ theory, and the wonderful developments in therapeutics that have been brought in. And they give us specifics to assist us in the treatment of diseases, which make a doctor master of the situation in a very large number of cases. We do not want to stand before the public as a set of criminals : men who are continually doing wrong with drugs. We have got to have drugs ; can not practice without them. When we are called upon to treat a patient that is sick, we can give the remedy that is going to tone up that body or mind, and do that patient good. This is a day of drugs, and I am glad to have the doctor present my views, probably better than I could present them myself, in regard to the status of the profession to-day in the treatment of diseases. The treatment by Christian Science is dead and gone ; it has passed, and we do not need to discuss it in a medical society.

DR. SILL : *Mr. President*,—We are moving on. While I despise Christian Science, I believe there is a sight of logic in it. You want to inspire your patients with confidence ; get them to believe in you ; inspire them with the idea that they are going to get well. Do not deceive them, but if there is a ray of hope, give it to them ; let the light shine in.

DR. SMITH : To some of the remarks I will say, that the subject of the paper is not upon the proper use of drugs, but their abuse. The truth is hard, and some things may have been misunderstood. No plea is made for irregular or unworthy pretenders to medical practice, but that regular physicians will, as best and fully as possible, free themselves from any real or seeming complicity with the terrible misuse of drugs.

## SOME EXPERIENCE WITH PULMONARY ABSCESS.

A. C. BERGEN, M. D., *Sioux City.*

Abscess of the lung is not a very common occurrence, as inflammation in the lung does not lead to the formation of a circumscribed abscess as it does when it affects areolar or parenchymatous tissue in other parts of the body. Abscess of the lung was once spoken of as very common, but as a matter of fact it is quite rare. Collections of pus in the lungs are sometimes found occurring in connection with inflammation of the veins. And tubercular cavities may often be found containing pus, but these are not genuine abscesses of the lung.

An accurate diagnosis of abscess of the lung is not always easy, and sometimes impossible. To make the diagnosis certain we require, in addition to the physical signs of a cavity, the evidence furnished by examination of the sputa, which contains large quantities of true pus mixed with portions of lung tissue, and frequently with blood. When the expectoration contains these evidences we may safely suspect the existence of pulmonary abscess, though we may not be able for some time to detect its situation.

Abscesses of the lungs may heal by adhesion of the walls, obliterating the cavity. The pus may be discharged in the direction of the least resistance, perforation into the bronchi being the most common; escape into the pleural cavity being the next in frequency.

The course of a pulmonary abscess is always protracted, and the healing may be imperfect, leaving a suppurating cavity, with habitual expectoration. Many cases demand early surgical interference.

I will relate the history of a case possessing some points of interest. Mr. C., an Englishman, age about 30, and resident of Dakota, was apparently in good health, but had been pestered for some time with a urethral stricture, and was anxious I should operate for its relief. I sent him to the Samaritan Hospital, in Sioux City, and divided his stricture, under ether, on the afternoon of January 13th, 1890. The following day he was suffering with an acute pain in the right side of his chest, with a temperature of 102°, a dry cough, marked dullness over the middle lobe of the right lung, with total absence of respiratory sounds in the affected region, but no expectoration.

There was no history of chill, nor ever any rusty sputa or rales of any sort. Simply a fever, with a distressing cough, acute pain and marked dullness over a considerable portion of the right lung. All effort to follow up the treatment of the stricture was abandoned.

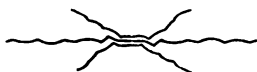
About the end of the second week a large abscess over the region of the sacrum was discovered and evacuated. A few days later he commenced to expectorate pus quite freely, and, after a few days, he had a spell, every

morning, of violent coughing, following which the pus would stream out of his mouth, to the amount of a teacupful, more or less, in the space of a few minutes. After three or four days this excessive discharge of pus ceased, and in the course of a few weeks the patient was convalescent, and was discharged from the hospital on the 13th of May, just four months after his admission. He passed completely from my observation, but his convalescence was very satisfactory, and at the time of his discharge he was gaining rapidly in strength and vigor.

The early history of this case closely resembles the description of what DaCosta termed the so-called pneumonia of LaGrippe, an epidemic of which prevailed at the time of his attack, and I have sometimes thought that his being etherized for half an hour may have been a factor in the etiology. At any rate I regard it as a somewhat peculiar case of pneumonia, lacking the characteristic chill, rusty sputa and crepitant rales, but terminating in abscess, with recovery, without surgical interference, in three months' time.

#### DISCUSSION.

DR. SILL (Strawberry Point): *Mr. President*:—There was one point I wished to bring out in this paper of Dr. Bergen's. It is a case that was placed in my hands a couple of weeks ago; a case you have seen in the hospital. It is a lady who seems to have a cavity in the right lung. I never saw the case prior to that time. She was in the hands of several practitioners for treatment. The right lung seems to have a good deal of resonance, and the heart had rapid action. In the left lung the entire front part was resonant, back not so much. The heart's action is the remarkable part of the case. The few times that I have seen the lady—who lives distant from me—I never have seen the pulse at less than 100 a minute, and I do not think I ever noticed it intermit. The sounds of the heart, as far as I have distinguished, were normal, still the pulse reached as high as 175 pulsations per minute. There is something marvelously mysterious in this case. I am a smart man, but I can't account for it. There are those here that have seen the case, and I want to know what ails that woman's heart. It is a remarkable feature to me. She is going to die. Oedema set in a few days ago. She is a good woman, but she is going to go, no doubt.





## SECTION OF SURGERY.

### CHAIRMAN'S REPORT.

J. B. CHARLTON, M. D., *Clear Lake.*

Probably there has never been a time of greater surgical activity than the present. Investigators of every grade and specialty are busy, and their work is fruitful. New lines of thought and research are being pursued. In most of the sciences this preliminary investigation, this stage of development, lies beyond the range of the ordinary worker. He may be little interested, and see little of the trend of thought, of the gropings toward the light of the leaders, who in many instances pass over to the silent majority, long before practical application has been made of their labors and discoveries. Not so, however, in the science of medicine. Fast as travels the "ocean greyhound" across the Atlantic, or the electric current beneath its waves, does a new medical discovery, surgical operation, idea or procedure find its way into the hands of a jury for trial; a jury without bias or prejudice, and that is coextensive with the civilization of the world; which has but one test for the truth of that which is submitted to its hands—the test of practical application,—and ill fares the new fact or theory that will not stand this test. If the past year has witnessed no great discovery or new and brilliant operation, it has been most fruitful in this work of testing, eliminating, verifying, careful experimentation, a perfecting of methods and technique of operation, so that the progress of the past twelve months may be characterized as a phase, in a process of surgical evolution, wherein that which is fittest alone survives, and that which fails to bear the test of time and experience, speedily finds its way to the vast dross-heap of discarded theories. On the very threshold of a consideration of our subject we are struck with the fact, that more and more each year is the best thought of the surgical world directed into the lines of work and investigation involved in the study of bacteriology. Not only because of its fatherhood of antiseptic surgery, but of still vaster possibilities that may be, that seem about to be evolved from researches in this most fruitful field. Do you smile and mutter "utopian," when I say vaster possibilities than have been wrought by antisepsis? But let us think. Already has it been demonstrated and accepted that lock-jaw is caused by entrance into the system, through the broken skin, of a micro-organism, the specific germ of tetanus; that this germ is common to the soil of all temperate and torrid zones, and that it is destroyed and infection prevented by bathing the wound immediately in the bichloride solution, and dressing antiseptically. It has been accepted that hydrophobia is prevented and cured by the inoculation of the patient with the attenuated virus, as discovered by Pasteur;

and marvelous to relate, it has been announced from Berlin, within the year, that Prof. Koch, who discovered the specific germ of tuberculosis, has succeeded in cultivating an attenuated virus, with which to prevent the march of the dread disease — consumption — of which it is authoritatively stated that one-half the entire population at some time in life acquire it, and about one of every four adult deaths is caused by it. By vaccination with the attenuated virus of smallpox, that disease has practically disappeared from the earth : and if this also comes true of lockjaw and hydrophobia, what are the possibilities as we make new discoveries in this field of investigation. In the past year it has been demonstrated that the limitations of the Pasteurian method are not so great as supposed. The tendency of the study of bacteria is to widen the field of communicable diseases, and to bring within this field many morbid conditions that previously were thought to have no specific contagium or virus.

The greatest difficulty is to be met in studying the germs of disease peculiar to man, but there are so many diseased conditions common to both man and the lower animals, that by the time we are through with the proper investigation of them a way may be found out of the difficulty mentioned. This fact shows how very important are the much-abused vivisection experiments, without which the scientific part of medicine would not be.

Since Koch made known his method of culture of microbes on solid media there has been considerable extension of our knowledge of micro-organisms, and of the means by which the animal organism defends itself against them. The *phagocytic* action of the migratory cells, as demonstrated by the Russian, Metschnikoff, explains much that has hitherto appeared unaccountable in the management of wounds. According to this theory, which now appears to be more nearly established fact than theory, the leucocytes nourish themselves like amœbæ, and have a special taste and voracious appetite for bacteria, which they absorb and digest, thus preventing their indefinite propagation. This is but a clue that may lead to more definite and specific knowledge in this teeming, prolific microscopic world with which we are surrounded, with whom we are ever in conflict, and in which there seems to prevail the same universal warfare, the same destruction and preying of one race upon another, that we see in the more visible world around us.

The scientific problem that is now pressing on every hand is the means by which this powerful, unseen foe may be shorn of its strength, or one family or race arrayed against another.

In my opinion any review or epitome of the progress of surgery in the past year that leaves out of consideration this phase of scientific advancement ignores the most vital question that can engage the thought of the modern surgeon, for in the language of Capt. Cuttle's oracular friend, Jack

Bunsby, "the bearings of the observation lays in the application on it." There seems to be a growing tendency in some quarters to entirely discard all antiseptic chemicals, and to rely altogether on what its advocates call aseptic methods. Bergman, in Germany, and Bantock and Tait, in England, are of this number, and the tone at times adopted by these men and their followers, in their tabulated reports and writings, would convey the idea that there was a question at issue between the adherents of widely different methods. In reality, however, there is no such issue, and the practice of these surgeons is not devoid of antiseptic means. They purify their sponges, ligatures and instruments, and observe the most scrupulous cleanliness. They wash the peritoneum with boiled water, the dressings are sterilized by heat. These are certainly antiseptic precautions of the strictest kind, and and no one can question the results secured by these men by such means.

It must be admitted, however, that much of the success of Lawson Tait in abdominal surgery is attributable to his marvelous operative skill, his rapidity of execution, the scrupulous cleanliness observed by himself and his attendants, and the copious flushings of the abdominal cavity and drainage, but more than this, it is not improbable that equality of success of Mr. Tait and the Listerians may be but the approaching of the same object from opposite directions.

Septic infection is the result of traumatic putrefaction ; two elements are necessary ; first, putrescible material, and second, a ferment or infective germ ; if either be absent no putrefaction can occur, and no infection result. Tait removes the putrescible material, coagula and shreds of dead tissue by flushing and drainage, the ferment then having no pabulum or soil for its development may be freely admitted with impunity. On the other hand Lister excludes the ferment by filtration of the air and by germicides, and thus practically sterilizes the putrescible material, if any be left in the wound. Thus, in either case, one element which is essential to the putrefactive process is removed, and the other, which is left by itself, is innocuous. As to the external dressing, the aseptic character of which may often be a matter of life or death, it may be thought to unite simplicity and security by using cotton wadding sterilized by heat, but this dressing being simply aseptic only prevents infection as long as it is dry. Once wet through to its external surface by secretions, it becomes a septic mass, and there are always wounds where the secretions will remain abundant. In these cases only antiseptic chemicals can prevent the development of septic organisms. Then, too, there are a large class of injuries that when they reach our hands it is impossible to put in a perfectly aseptic condition, and where the liberal use of iodoform or other agent enables us to render the germs that have already found an entrance inert and powerless for mischief, so that where absolute cleanliness is impossible there is the class of germicides to call to our assistance.

When threatened with an invasion of cholera from over the sea we clean and garnish our seaport cities ; we render them as nearly aseptic as possible, the wisdom of which no man questions. We place them in such condition that when the germ comes it will fall on stony ground and find no soil for its propagation. But we are not content with this. We propose, if possible, to prevent the enemy from even entering, and so we establish quarantine stations at the harbor entrance to make safety doubly safe. And so with our wounds. Let us dress and prepare them from within by the strictest aseptic code, but let us also set an antiseptic quarantine at the entrance to say to the omnipresent germ, "Thus far, and no farther." Cleanliness (microscopic), the methods of securing it and the methods of maintaining it, are the very bone and marrow of all good surgical work to-day.

Perhaps no branch of our art has had greater attention paid to it, or made more satisfactory progress in recent years than abdominal surgery. There is scarcely a limit to the work of the surgeon in this region. It includes disease or injury of every organ in the abdominal cavity. A very few years ago the knife of the operator was restricted almost exclusively to the ovary alone. Wounds and lesions of the various organs are now cut down upon, washed clean, stitched and dressed with comparative ease, and with results that are marvelous. Even where the wounds cannot be found, as sometimes occurs, the assistance we offer nature by thorough cleansing and drainage greatly increases our chances of success. Some of the most recent deductions may be summarized somewhat as follows : I. In gunshot wounds of the abdomen, in view of the uncertainties which attend these injuries, explanatory laparotomy should in every case be boldly but carefully performed, the operator being in readiness to meet any exigency that the case may demand. II. Laparotomy in the linea alba is preferable to one performed in the course of the gall unless there are reasons for believing that the gall became arrested short of the peritoneum, or the track infected, in which case incision and drainage should be employed.

Considering the objections to Senn's test as a diagnostic means of determining the necessity for laparotomy, the possible harm outweighs to such an extent the possible benefit that its adoption is hardly justifiable. Large intestinal wounds, not involving the mesenteric border, are best treated by partial resections. Intestinal wounds upon the mesenteric border, unless very small, require a complete resection. Suturing both openings in wounds of the liver and spleen, for the arrest of hemorrhage, is advisable. Excepting superficial lesions, nephrectomy is the only procedure in wounds of the kidney.

The new view and the better understanding of the pathology of local and general peritonitis has been followed by an entire change of front in the treatment of these conditions. It is now very generally understood, and in fact may be said to be demonstrated, that in a large majority, if not all cases,

peritonitis is a symptom of some well-recognized injury or lesion of the abdominal or pelvic viscera, and that the only rational treatment is based on this conception of the disease. Peritonitis is not a distinct disease, as taught by Bichat, and upon which teaching the treatment by Alonzo Clark gained such great popularity. The opium splint is now regarded as irrational, for it not only locks up the product of inflammation, but as shown by Wylie, Johnson, Baldy and others, subjects the patient to one of the greatest dangers of the disease, viz., obstruction of the bowels from adhesion. The first two indications for treatment of this disease are best met by free purgation, as taught by Tait and others, and the majority of those who have adopted this plan select the magnesium salts, as they produce very large watery stools. When the stomach rejects salts, calomel may be used. Purgative treatment aids diagnosis, while all symptoms may be masked by opium and an operation delayed too long. It is certainly best not to resort to the free use of opium unless an operation has been decided on, and then only to relieve pain and lessen shock. The object of medication should be to promote absorption of the inflammatory products of simple peritonitis as rapidly as possible, and thus relieve the inflammation and prevent the possibility of septic peritonitis. When medical treatment fails to give relief, septic fluids should be removed and the abscess cavity drained. In acute septic peritonitis, operative procedure must be adopted early, or there will be no chance of recovery offered by the operation, as the inflammation will become more extensive the longer it continues; and, too, there will be so great a quantity of septic germs absorbed into the system that death will result from toxæmia, even though the local inflammation should be remedied by a later operation. No case of general purulent peritonitis will recover without operation.

There is but one treatment for suppurative peritonitis, section, irrigation and drainage; postponement is more dangerous than the operation, and at the worst only hastens a result which is certain to follow without operation.

#### DISCUSSION.

DR. HORNIBROOK (Cherokee): *Mr. President*,—If there is no objection I would like to offer a few remarks. I will have to ask the indulgence of the association as I have nearly lost my voice, and I would not undertake to speak at all but that I differ decidedly from some of the views expressed in the report. While the report is learned, and while it sets forth views which are generally received, it does not set forth the views I accept, and therefore as an humble member of the association I would like to go on record as not fully endorsing the paper. First, as to Bacteriology, I am not inclined to belittle that important study. I am not inclined to belittle the benefits which medical science has derived from a search after these micro-organisms, but I don't think the profession's having resolved itself within the last few years into a grand body of bacillus-hunters, has benefited the science to the extent that its advocates claim.

What benefit have we derived from a discovery of a comma-bacillus? Can we treat cholera any better? What benefit has been derived, so far as we know, from the discovery of the bacillus of Koch? The subject is yet *sub judice*. The facts, so far as I have been able to collate them, go to show that Koch's treatment is a failure. What benefit have we derived as yet from the discovery of the bacillus of rabies? It is true you have your Pasteur Institutes all through the country. Good results are reported, but then what benefit if they still have hydrophobia after the treatment? Really, sir, the only great proof that inoculation with a diluted form of one disease prevents another was made by Jenner before a bacillus had been discovered, and it is a question whether this everlasting hunt for bacilli is not retarding the progress of medical science rather than advancing it. I doubt very much whether any antiseptic treatment has shown better results than the aseptic treatment of Lawson Tait.

Then, sir, I think there is a too-hasty generalization in the treatment of peritonitis and gun-shot wounds. The broad doctrine, as I understand it, as laid down, is that in all gun-shot wounds laparotomy should be resorted to. From that I differ *in toto*. The statistics of the operation of laparotomy for gun-shot wounds are such that a man might well hesitate, even if there is no value in any other treatment.

I was called in consultation where the surgeon held the theory that laparotomy should always be resorted to in cases of gun-shot wounds. I found the man with a gun-shot wound of the abdomen. I advised them to let him alone, and in a few weeks the man was well, although he carries the bullet in his body to-day. In reference to purulent peritonitis, the broad statement is made that purulent peritonitis does not get well without laparotomy. Dr. Pease and myself know that it does get well without laparotomy. We saw a case where it did so. It was a case where the pus cavity opened into the intestine, and was evacuated, and the woman is well to-day. The doctor and myself declined to do a laparotomy, not because we did not think it was the best course to pursue, but because the surroundings were such that we did not think it was justifiable; she could not get the care she ought to have.

General purulent peritonitis does get well without laparotomy, because I have seen the abscess open close to the umbilicus, and the patient get perfectly well. I would also differ entirely from the statement made that the proper treatment in all cases of septic peritonitis is purgation. I did a laparotomy in a case of septic peritonitis where I found the intestines in such a condition that after I punctured them there was not sufficient contractility to expel the flatus, and it had to be rubbed out with the hand. What is the use of giving purgatives in such a condition of the intestines? It is worse than useless—it is madness; and therefore I hold that our forefathers, who gave opium, are not to be too hastily condemned, and that except in gynecological practice, the practice of giving purgatives, especially saline purgatives, is useless and often dangerous.

## EDITORIAL.

THE search after the cause of things has always been the most fascinating of pursuits. Our earliest query, and the one we never tire of repeating, is "Why?" One of the main reasons for this is undoubtedly the fact that no answer can be final, and a perennial novelty and pleasing variety are thus afforded. The *causa vera* of to-day is seen to-morrow to be either a mere accident, or but a tiny link in a long chain of previous causation. Nowhere is this principle better illustrated than in the much-vexed question as to the origin and nature of diphtheria. Changes of temperature, damp subsoils, drainage, water-supply, have all been confidently heralded as the tap-root of the evil, but now we are assured with a grand flourish of trumpets that the real, final fundamental cause has at last been discovered. It's a germ, of course. No truly modern and scientific investigator would dream of discovering anything else as a cause of disease in this day and age. The motto of the celebrated French detective in unraveling a complicated case, "*Cherchez la femme*," "Look for the woman," has been adopted by them, only instead of "woman" they read "germ." And when they have found it they bear it home rejoicing.

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At the risk of being thought old fogies, or even obstructionists, we would venture to call attention to a few considerations which, to our un-enlightened vision, seem to constitute decided obstacles to the acceptance of the germ as the final, sole cause of this morbid process. In the first place, the absolute specificity of the disease seems scarcely sufficiently established, for we have a perfect and unbroken series of cases of every degree of intensity, from the mildest "tonsillitis" to the most malignant "diphtheria," not only in unrelated individuals, but in successive victims of the same contagion, successively-affected members of the same family, successive stages in the same individual, and even in large groups from different epidemics. There is not a "missing link" anywhere in the series. In most cases the differential diagnosis of the two diseases is proverbially difficult, and I venture the further assertion that in some cases it is impossible, the

two being different degrees of the same process. A distinguished London clinician is authority for the statement that he has seen the process beginning as a simple tonsillitis in the first member of a family, gradually increase in intensity as it extended through the rest of the group, until in the last member it culminated in a genuine malignant diphtheria, with all the sequelæ, and was transmitted as such to other households.

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IN a recent epidemic of great severity in this city two of our most intelligent and experienced physicians reported a striking instance of exactly the same transformation, and several others in which the genetic relation of the cases was not quite so absolutely incontestable. I am convinced that these transformations are comparatively frequent, and that we have fallen into the habit of classifying our diseases in much the same iron-clad way that naturalists did their species before the days of Darwin, and blaming ourselves for an incorrect diagnosis when we meet an intermediate form. Any angina which reaches a certain arbitrary standard of virulence, with the necessary sequelæ, we term diphtheria; any which falls below it, tonsillitis, without any regard to their genetic relations. If the latter are unusually obscure or apparently absent, we dub it "sporadic," and thus beg the question by admitting the possibility of its developing autogenetically.

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IN the second place, if the disease be due solely to the poisonous effects of the ptomaines produced by the bacilli in their growth and multiplication upon surface of the tonsils and pharynx, to which regions their most ardent adherents admit that they are strictly confined, it would seem somewhat difficult to account for the severe prodromic symptoms which are present in a large majority of cases before any important change has taken place in even the epithelium of these regions. Especially is this true now that the extremely interesting and valuable experiments of Hodenpyl have shown that the absorbing power, of the tonsillar surfaces at least, is almost absolutely *nil*.

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THE next two difficulties are personal to the germs themselves. There are too many varieties of them, and they are not



uniformly present in every case. The reputation of Prudden entitles his streptococcus, according to all the accepted criteria, to be regarded as the cause of the disease, just as confidently as the bacillus of Loeffler; and yet the organisms are entirely different, and Prudden is emphatic in declaring his inability to discover any such bacillus as Loeffler's in the specimens examined by him. In none of the series of cases examined, even by the most enthusiastic bacteriologists, could the characteristic germ be found in more than a majority of them; in some series in only a minority, and in one or two investigations by thoroughly competent observers their presence could not be detected at all. From this it would appear that a considerable proportion of cases sufficiently typical and virulent to be deemed suitable for a bacteriological examination had been able to develop without the assistance of the bacillus.

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FINALLY, after all is said and done, I cannot help feeling that the germ theory is an explanation that doesn't explain. Back of the most implicit acceptance of their causal relation rises the irrepressible question, "What causes the germs?" Either we must regard them as originally pathogenic, or, as having at some period been developed by change in their environment from non-pathogenic forms. The first position seems scarcely tenable, for an obligate parasite, confined to the human species, rapidly causing the death of its host, and incapable of developing outside of his tissues, would have to be endowed with positively incredible longevity and powers of resistance to maintain its existence for any length of time. If the other position be taken, and it appears to be supported by nearly all the facts in the case, especially the violent epidemic outbursts whenever a certain degree of overcrowding and filth-accumulation has been reached, then we promptly find ourselves face to face with the original question, only it is the environment of the germ instead of that of the patient which we are to investigate. The point of interest now is, what are the influences which cause one of the harmless bacterial denizens of the bucco-pharyngeal cavity, of which Willoughby has demonstrated thirty-six distinct varieties, to degenerate into the bacillus of Loeffler, or another into the streptococcus of Prudden?

## DEPARTMENT OF DISEASES OF ANIMALS.

S. STEWART, M. D., D. V. M., EDITOR.

(Secretary Iowa State Veterinary Society.)

### A NEW USE FOR PEPSIN.

Something more than peroxide of hydrogen is wanted for managing the abscess cavities of tuberculous bone-disease to our entire satisfaction. It is true that with hydrogen peroxide at hand we can open the biggest of cold abscesses with a feeling of security for the patient, and yet it is desirable to get the tough lining membrane of fibrinous lymph and the loose coagula and the sloughing diseased tissues out of the way as thoroughly as possible; for once these substances have begun to seethe in fermentative processes, we are hard pressed to keep the patient out of trouble. The sharp spoon and scissors will do the work, to be sure, but only after tedious labor and egregious wounding of the weak patient.

A resource was brought into play a few weeks ago when I had occasion to make suggestions relative to the treatment of a crushed liver. Portions of the organ, which were dark and sloughing, remained so firmly attached, that their removal was dangerous, and the pultaceous lining membrane of the enormous abscess seemed to invite all manner of microbe guests. The idea of liquifying the dead tissues with a digestive ferment came into mind, and this being suggested, was carried into effect by the family physician, who injected into the abscess cavity a solution of scale pepsin, and writing to me afterwards, said: "The pepsin did mighty good work. It broke up all dead tissues, rendering them mostly liquid, and changed the color from brown to straw color. The liquefied substances were easily washed out through the drainage tube. The wound was sterilized daily afterward with hydrogen peroxide and the patient recovered without a bad symptom."

"From experiments it seems that a 10 per cent solution of the best pepsin, acidulated with 1 per cent of hydrochloric acid, and heated to a temperature above 100° F. (not over 120° F.) will be proper for surgical purposes.

"We need not employ the pepsin until the patient has recovered from the effects of ether after an operation, and then the liquefying process can be attended to at leisure. The abscess cavity should be washed out with boiled water, for antiseptic solutions would interfere with the action of a digestive ferment. The patient then assuming a good position for holding the pepsin solution in the abscess cavity, he can receive the hot injection; and hot fomentations continued for an hour will promote the action of the ferment down below.

"Bad tissues sufficiently liquefied are washed out with boiled water, and

the whole wound is then sterilized with peroxide of hydrogen and prepared according to the surgical conception of neatness."

The foregoing gives a hint to veterinarians who have cases of poll-evil and fistulous withers to treat. If the gastric ferment will dissolve away the fibrous and ligamentous tissues which operators in this class of cases find so difficult or impossible to remove, it will prove of inestimable advantage in their management. We will be pleased to receive reports of experiments for publication.

#### PERICARDITIS IN A MULE.

A male mule was brought to the hospital about 9 P. M. for treatment and the following limited history obtained from the attendant: The mule had been used all day hauling dirt. He was returned to his stall at night, and as customary was watered and fed, nothing having occurred to lead the driver to suspect that the animal was not in its usual health. Upon the return of the driver two hours later he noticed that the mule had not eaten his grain, but nibbled occasionally at hay; he was apparently in some distress and breathed quite rapidly. The mule was brought directly to the hospital, a distance of about one-half mile. Upon arrival he presented the following symptoms: temperature  $104\frac{1}{2}$ , respiration 76, nostrils widely distended as though he had just ended a race, pulse 75 to 80, soft and small, a facial expression of distress, a slight cough; he would occasionally look to the left side, indicating distress or pain in that portion of the body; he did not lie down but moved restlessly about; percussion and auscultation over the region of the lungs revealed normal but hurried respiration. When the ear was placed over the region of the heart a peculiar friction sound, known as the "new-leather" crackle or sound, was plainly discernible. The heart-beat could not be heard nor felt, although repeated efforts were made to do so. Pericarditis in the first stage was diagnosed and the following treatment given: Fl. Ext. Jaborandi  $\text{℥}$  1, Acetanilid  $\text{℥}$  1, Aqua  $\text{℥}$  viii, given as a drench, and repeated in  $1\frac{1}{2}$  hours; the body warmly clothed. At 11 P. M. the respirations were 50, nostrils only slightly distended, pulse 85, soft but full, salivation profuse, friction sound of heart greatly lessened; mule desired to eat but was restrained. At 12 P. M. Liq. Ammon. Acetat.  $\text{℥}$  iv was given. At 7 A. M. the following morning found the temperature  $100\frac{1}{2}^{\circ}$ , respiration 25, pulse 60, soft and full. The heart sounds could be distinctly heard and felt through the chest wall. At 12 M. the temperature was 100, respiration 16 and pulse 52. Liq. ammon. acetat. in iv  $\text{℥}$  doses was given every 4 hours during the day. Convalescence was completed without further medication, and when seen several days later no accumulation of serum could be discovered in the pericardium. It does not often occur in the experience of veterinarians to receive cases of pericarditis in the first stage or stage of

congestion; hence the new leather friction sound in the disease has never been heard by many practitioners.

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#### EXTRA-UTERINE FŒTATION IN A COW.

A case of extra-uterine fœtation was discovered in a cow which was slaughtered recently in a South Omaha abattoir. The fœtus was nearly mature, and was enclosed in the usual membranes which were attached to the inferior surface of the uterus and its appendages, and to the colon and meso-colon of that region. The placental tufts were developed in the region of the attachment to the peritoneal surface of the uterus and colon; they were quite large and not pedunculated. The external membrane or chorion was quite dense and thick. The inner membrane and funis were normal in appearance. The cow was quite fat and seemed in no way different from a cow in normal pregnancy. In Fleming's Veterinary Obstetrics are notes of cases of extra-uterine pregnancy in nearly all domestic animals, but he says they are exceedingly rare. His notes of a few cases include all that were recorded in European literature for a period of more than fifty years. Many cases in women have been reported in the last few years. It would be of great interest to medical readers to have all observed cases in domestic animals reported.

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#### GARGET.

Prof. Kitt, of Munich, has found a bacillus that is constantly present in the udder in cases of mastitis (parenchymatous inflammation of the udder), and pure cultures of which injected into the milk cistern will cause the disease. The author also made experiments of injecting the bacillus of malignant œdema, oidium lactis and micrococcus tetragenous into the milk cistern, but these produced no inflammation. The bacillus of blue milk and of chicken cholera produced a catarrhal mastitis. The specific bacillus of mastitis, when injected, produced, in every case, a severe purulent, indurative mastitis, and even smearing the cultures about the mouth of the teat was sufficient to cause the disease. The inflammation was always confined to the inoculated quarter, and one attack did not give future immunity. Injections into the udder of solutions of creolin and iodine had no curative effect.—*Journal of Comparative Medicine and Veterinary Archives*, July, 1891.

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#### SODIUM HYPOSULPHITE.

I find it a most valuable remedy in all my cases of Azoturia since I have commenced to use it. Under the old line of treatment, in cases where my patient was prostrated and showed great restlessness, my prognosis was generally unfavorable. Since I have employed the hyposulphite the greater

number have made a recovery, and I most heartily recommend its use in these cases.—*J. W. Marsh, D. V. S., in Journal of Comparative Medicine and Veterinary Archives, July, 1891.*

Veterinary practitioners everywhere are always glad to learn which remedies practical experience demonstrates to be useful in this or that disease, yet when a note like the above is published they cannot but realize how unfortunate it is that the author of it did not appreciate how important it was to his intended readers to know in what sized doses, in what manner, and how frequently given, and, if possible, the rationale of its use. Had he given these particulars others could intelligently make use of his discovery, and not be compelled to institute a series of experiments to solve a problem which the author has worked out already.

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#### NOTES AND EXCERPTS.

DR. L. G. PATTY has removed from Audubon to Council Bluffs.

DR. T. W. WATSON, formerly of Marshalltown, is the Government Veterinary Inspector for Armour & Co's abattoir, in Chicago.

DR. S. STEWART, of Council Bluffs, has been placed in charge of the government inspection at Swift & Co's slaughtering establishment in Omaha.

PROF. M. STALKER, State Veterinarian, spent his summer vacation on the Pacific coast, and while there made a trip to Alaska. He reports a very pleasant outing.

SCIENTIFIC investigation has clearly demonstrated the transmissibility of tuberculosis through the milk from tuberculous cows. This fact should cause every board of health in Iowa to require rigid and frequent examinations of all dairies within their jurisdiction.

DR. TAIT S. BUTLER, of Davenport (formerly of Iowa City), has been elected Professor of Veterinary Science for the Agricultural College of Mississippi, and veterinarian for the government experiment station located in connection with the college. Dr. Butler's many friends must be highly pleased at his selection for the place, and the college is to be congratulated upon the wisdom of its choice. The doctor has been secretary and president of the Iowa State Veterinary Medical Association, and enjoys an enviable reputation as a scientific practitioner.

## DEPARTMENT OF PLANT DISEASES AND BACTERIOLOGY.

[In this department all questions pertaining to plant life, especially interesting to physicians, will be considered. From time to time reviews will be given of papers pertaining to fungi, especially such as cause pathological conditions. Matters relating to the adulteration of foods and medicines will be considered. All are cordially invited to contribute to the columns of this department.]

*State Agricultural College, Ames, Iowa.*

L. H. PAMMEL, B. AGR., EDITOR.

(Professor of Botany, Iowa Agricultural College.)

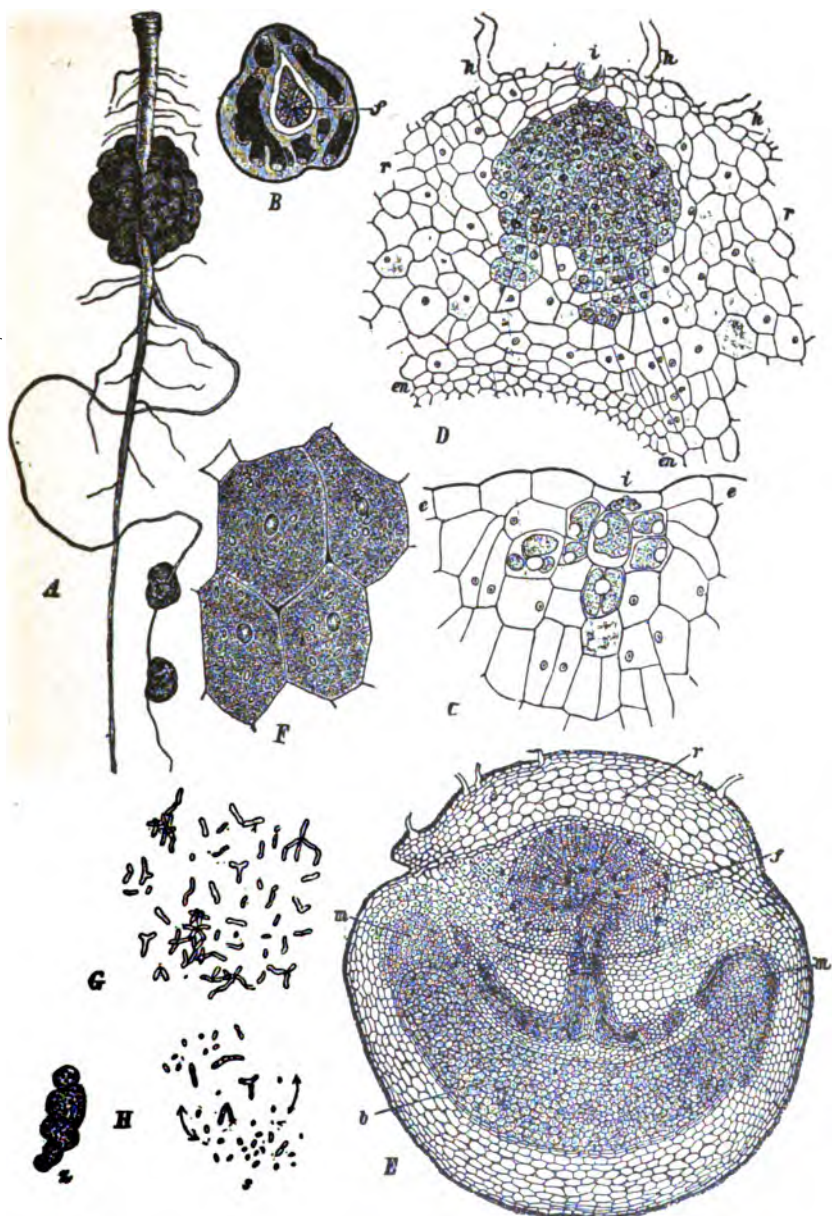
### SYMBIOSIS.

There are few subjects of more general interest than that of symbiosis. Originally the term was used where two organisms were associated together, but as now understood, it means "the association of plants with plants, or plants with animals, in such a way that the relation between them is one of mutual benefit, or in which there is at least no injurious action of one organism on the other."<sup>(1)</sup> Cases of symbiosis in the vegetable kingdom have been known for some time. Lichens afford an excellent illustration. Here the plant body or thallus consists of two organisms, a fungus and an alga known as gonidia. The fungus grows around the cells of the alga, and a close relation is formed between the two. The fungus supplies mineral matter to the alga, while it also promotes assimilative activity of the alga. Without the alga the fungus cannot live, at least for any great length of time, since it is devoid of any of the green coloring matter, chlorophyll.

In recent years the subject of symbiosis has received considerable attention, owing to the bearing the question has upon a rational agriculture. It has been known for a long time that leguminous plants, like Clover, enrich the soil. This led to the very general belief that these plants have the power of taking up the nitrogen of the atmosphere by their leaves. Leguminous plants invariably left more nitrogen in the soil, while plants like wheat left the soil poorer in this very important element.

Boussingault, who made some very careful experiments as to how plants obtain their nitrogen, came to the conclusion that plants do not take up any of the free nitrogen from the atmosphere through their leaves, although there was an appreciable gain of nitrogen over that found in the seed. Dietzell, who experimented in this direction, came to the conclusion that clover and peas cannot appropriate the nitrogen of the atmosphere by the leaves or other parts of the plant above ground. Wolf and Kreuzhage, however, were able to show that leguminous plants grew just as vigorously in a soil free from nitrogen as in one containing an abundance of this element, the plants appropriating a very considerable amount of nitrogen. Other inves-

(1) Dr. Farlow *Vegetable Parasites and Evolution*. Bot. Gazette, vol. 7, p. 173.



TUBERCLES ON ROOT OF LUPINE.

A—Root with tubercles. B—Cross-section of tubercle. D—More magnified, showing changes in cell-structure at l. F—Bacterioid tissue. E—Section of young tubercle, with bacterioid tissue at b. G—Bacterioids from cells. H—*Rhizobium leguminosarum* cultivated in gelatin. z—Zoogloea. (After Frank.)

tigators obtained similar results. Since it was demonstrated that parts of the plant above ground could not appropriate free or combined nitrogen, scientists endeavored to find "helping" organs which would assist in this. They have been discovered in the small tubercles found on a large number of leguminous plants. The peculiar tubercle-like swellings found on the plants of this family, vary much in size. The smallest are not larger than the size of a pin-head, while the larger are as large as a hazel-nut. They were observed as early as 1687 by Malpighi, who supposed them to be galls. De Candolle thought them diseased structures, while Treviranus held them to be undeveloped buds. Woronin, who studied these structures very carefully, considered them diseased structures, as he found small organisms in them. Cornu likewise considered them diseased structures which were first invaded by nematode worms. Eriksson, who made a very careful study of these tubercles, noticed that the organisms found by Woronin were not simple rod-like bodies, but were frequently forked. He also noticed thread-like bodies extending from the outer part of the tubercle radially inward. These are readily seen, and have been observed by nearly all investigators who have given the subject any attention. Frank, in some of his earlier papers on the subject, called attention to the non-appearance of these swellings in soil which was sterilized. Brunchorst and Tschirch considered the tubercles to be normal structures, and that they arose from the protoplasm of the cells. The small gemmules found in the cells were called *bacterioids*. The authors did not regard them of a fungus nature. These bacterioids were regarded as reserve material, which later were absorbed by the plant, especially during the formation of seed. Marshall Ward, in a very excellent paper, in which the results of his experiments with the common Windsor Bean (*Vicia Faba*) are given, concludes that the tubercles develop invariably in soil when it is not previously sterilized. They do not develop when the soil is sterilized. That the fungus enters the plant through the root-hairs, forming a thread-like body. That in the interior of the cell the organism multiplies.

Beyerink, Wigand, and others, have cultivated the organism originally from the tubercles in nutrient media such as gelatin. Leguminous plants inoculated with these produced typical tubercles. Beyerink called the organisms *Bacillus radicola*. Earlier the tubercles were called *Schinzia Leguminosarum*. Frank has recently given it the name of *Rhizobium Leguminosarum*.

All the more recent investigations indicate that the organisms enter by way of root-hairs, that the organism is widely distributed in the soil, and Frank states that the root-hairs throw off a nutrient substance which draws the fungus to it, and thus enables it to multiply on the surface. A few of these bacteria enter the root-hair and form little clusters at the tip; these become enveloped with a glistening membrane, which is firmly united to



the cell-wall. Thus a knob is formed at the tip of the root-hair from which arises a thread-like body that proceeds inwardly. Frank is of the opinion that this thread-like body is probably a production of the cell-wall and forms a passage way for the bacteria to pass down to the deeper tissues of the root. Here the protoplasm of the cell becomes intimately associated with that of the organism. So that the protoplasm of the cell is a mixture of the two which Frank has called *mycoplasma*. From the root, the organism is distributed to various parts of the plant, even to the fruit. Frank states that it has even been found in the embryo, so that the organism may be transmitted to future generations. At the points of the root where the organism entered the tissues, new cells are formed, finally developing into the tissues of the root. Frank still retains the term *bacterioids* for the bacteria-like bodies found in the tubercle. According to his notions the cocci are imbedded in the protein elements.

The chemical researches made by Hillriegel and Wilfarth, Atwater, and others, indicate that these tubercles are important in the acquisition of nitrogen.

Hillriegel and Wilfarth draw the following conclusions from their elaborate experiments: "That Leguminosæ behave quite differently from grasses with respect to the appropriation of nitrogen. Grasses depend entirely for their nitrogen on the nitrogen compounds contained in the soil. Leguminosæ can, in addition to the combined nitrogen of the soil, appropriate the free nitrogen of the atmosphere. They cannot assimilate the free nitrogen without the aid of the micro-organism in the tubercles. It is not the mere presence of these organisms which enables plants like clover to assimilate free nitrogen, but the latter must be in a symbiotic relation. That the root tubercles of leguminous plants are not simply store-houses for the proteid substances." Atwater states the case as follows: "Without root tubercles there was in no case any large gain, and with them there was uniformly more or less gain of nitrogen from the air. As a rule, the greater the abundance of root tubercles in these experiments the larger and more vigorous were the plants, and the greater was the amount of atmospheric nitrogen acquired."

(To be continued.)

#### KRAMER'S BACTERIOLOGY.

Dr. Ernst Kramer's(2) little work on Bacteriology, and its relation to agriculture, fills an interesting gap. The first part of the book is devoted to morphology, biology of bacteria and technique. The special part considers first, bacteria of the soil, and changes caused by them.

The number of germs found in soil is enormous. He found in 1 gm. of

(2) Die Bakteriologie in Ihren Beziehungen zur Landwirtschaft und der lander-technischen Gewerben, Vienna, 1890. Erster Theil.

earth, at a depth of 20 CM., 650,000 germs; at the depth of 70 CM., 276,000; at a depth of 140 CM., 700. A large number of different species are present in the soil, non-pathogenic as well as pathogenic. Of the latter he says: Pathogenic bacteria are of such common occurrence in the soil, that from no other source can infection be carried so readily as through the soil. It is well known that the germs of malignant oedema, infectious tetanus, etc., etc., are commonly found in garden and other soils. Rot is defined as the rapid and extensive decomposition of nitrogenous substances by bacteria. In this decomposition disagreeable gaseous products are given off in large quantities. This decomposition may occur in the presence of air or where it is absent. Liebig's notion that decomposition is a chemical process in which living organisms do not take part, is no longer tenable in light of modern research.

Without living organisms decay cannot take place, so that while bacteria do much mischief, they are great benefactors. Without them we could not have such beautiful landscapes, and life would be an impossibility. The subject of nitrification, or the changing of the nitrogenous substances into ammonia and nitric acid by aid of micro-organisms is also considered. It would seem from the different investigations that not only do saprophytic bacteria aid in nitrification, but that some of the pathogenic, like the typhoid bacillus, anthrax bacillus and staphylococci have the power of causing nitrification. While some organisms cause the formation of nitric acid, others cause a reduction. It would also seem from recent experiments that bacteria are engaged in the formation of bog iron-ore. These are designated as "iron bacteria." Other bacteria, like *Beggiatoa alba*, contain highly refringent granules of sulphur. These are designated "sulphur bacteria." The second chapter treats of the decomposition of manure by bacteria. In manure decomposition is not a mere rot, but is complicated, due to various kinds of ferments and nitrifying organisms. Third chapter treats the symbiosis of leguminous plants. Fourth chapter is devoted to plant disease caused by bacteria. Among those mentioned are Bacteriosis or Wet Rot of Potatoes. Gummosis of Tomatoes. Apple and Pear Blight, etc. In the fifth chapter are mentioned the pathogenic diseases of domestic animals.

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#### KLEBS-LÖEFLER BACILLUS AND DIPHTHERIA.

Prof. E. Klein (3) has worked out the connection between the Klebs-Löffler bacillus and diphtheria, like Zarniko, Escherich, Loeffler, Roux and Yersin. He believes this is the sole cause of diphtheria. In twenty-two acute cases he has found a bacillus invariably present (bacillus

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(3) *Centralblatt für Bakteriologie und Parasitenkunde*, Vol. VII., p. 480, 521. *Centralblatt für Bakt. u. Parasitenkunde*, Vol. VII., p. 785.

No. II). In twelve cases a second bacillus was found (bacillus No. I). The two organisms are much alike in their morphological and biological characters, but he considers that No. I is the Klebs-Löffler bacillus.

Cats were inoculated with cultures obtained from human diphtheritic membrane. Two of the inoculated animals died on the sixth day. The reason he selected cats for the experiment was that in families where diphtheria had occurred cats have been known to be attacked by a disease similar to diphtheria, in some cases the animals died. Cats are well suited for the experiments according to Klein. In the second article Prof. Klein calls attention to epidemics of diphtheria in England which have had their origin in milk containing diphtheria organisms. Three of these epidemics have occurred in recent years, 1886, 1887, 1888. In each of these cases the cause seems to have been suspected in the milk. In two of the suspected animals eruptions were found on the udder and teats.

To determine whether diphtheria could be produced in cows, two animals were selected for experiment. They were inoculated subcutaneously on the left shoulder eight or ten weeks after calving. Each animal received 1 c cm. of the pure culture of the diphtheria bacillus. Two days after the inoculation there was a slight swelling of the parts where the inoculation had been made; this began to increase in size till two weeks when it became smaller. At this time the animals began to cough. Cow No. 1 lost its appetite. Cow No. 2 continued to eat till the twenty-third day, when it also lost its appetite. The animal became so weak that it could hardly stand. It was killed on the 25th day. Prof. Klein lays stress on the fact that it was possible for him to demonstrate the presence of the bacillus in milk. Sections as well as culture made from the membrane and diseased tissues showed the Löffler Bacillus. The eruptions found on the udder were of a contagious nature, since the contents were used to inoculate calves with successful results.

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#### THE POWER OF RESISTANCE OF THE HOG CHOLERA BACILLUS.

According to Dr. Theobald Smith(4) the hog cholera bacillus is destroyed instantly when placed in 10 cc. m. of beef bouillon at 100°C.; at 70°C. they are destroyed in four minutes; at 58°C. they are destroyed in fifteen minutes; at 54°C. in sixty minutes; at 49°C. they are still alive after two hours. Corrosive sublimate in the proportion of 1 : 100,000 destroyed the organism in thirty minutes. Iodide of mercury dissolved in two parts of iodide of potash in the proportion of 1 : 200,000 destroyed the germ in two minutes; 1 : 1,000,000 in ten minutes. Sulphate of copper 1 : 200 in five minutes; 1 : 1,000 in twenty minutes. Carbolic acid, 1 : 100, vitality was lost from five to ten minutes. Chloride of zinc, 1 : 10, killed in fifteen minutes.

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(4)Centralblatt für Bakteriologie und Parasitenkunde, Vol. IX, p. 308.

## NOTES.

ACCORDING to Vaillard and Vincent the tetanus bacillus grows between 14° and 43°C. Although able to grow between 42° and 43°, spores are not formed; although degenerated forms occur, they appear not to lose their virulence. Spores are quite resistant. They are destroyed when heated at 90° c. from one to two hours. Important appears to be the fact that tetanus spores do not germinate in the tissues. In Guinea pigs disease followed when with the intra-muscular injection of spores a small amount of lactic acid, trimethylamine, or a small amount of the culture of *Bacillus prodigiosus* was added. The authors believe that it is through saprophytic organisms like the above that a pus wound is developed in which the tetanus bacillus can multiply and then become dangerous. The poison is an enzyme closely related to that found in Diphtheria. In doses of 1-500 c cm. Guinea pigs were killed. (Abst. Centralbl. Bakt. u. Parasiten K., Vol. IX, p. 479).

ACCORDING to M. G. Lemiere, corrosive sublimate possesses pyogenic properties and produces in normal subcutaneous tissues aseptic pus. The formation of pus depends on a chemical action which comes from the chemical combination of the corrosive sublimate. (Centralbl., l. c., p. 485).

DR. OKADA has found a new microbe between the boards of a floor which is very pathogenic to mice, Guinea pigs, and rabbits. (Centralbl. l. c., p. 442).

DR. ROSS has found a case of mycosis in the urine of a man. The right kidney appeared to be affected. He cultivated the fungus and soon obtained colonies of *Aspergillus*. It proved to be *A. fumigatus*. It was very pathogenic to rabbits. (Centralbl. l. c., p. 504).

VARIOUS smuts on grains have been unusually severe in Iowa this year. It may not be generally known that smut only enters the wheat plant when the latter is germinating, through the delicate tissues.

Up to the 5th of June very little wheat rust could be found, but after the recent copious rains, June 16, on many of the wheats, especially where it was rank, much rust was found. While some of the rusts seem to be perennial in the tissues of the wheat plant, others are only annual. Common grass rust (*Puccinia Graminis*) produces one stage, the æcidium on the Barberry which is known as the Cluster-cup fungus, from this it is transferred to wheat, oats, etc. Many fungi, as well as some bacteria, have different cycles in their development. Thus it is well known that the spores of anthrax bacilli are formed in the soil, or in decomposing substances.

The Cluster-cup fungus of lettuce (*Aecidium Compositarum*) has been common on cultivated lettuce here at Ames, and also at LaCrosse, Wisconsin. This fungus is usually common on many wild composites, and this suggests that many of our cultivated plants take diseases from wild plants.

## ORIGINAL CONTRIBUTIONS.

## INFANT FEEDING.\*

BY G. G. CRAIG, M. D. *Rock Island, Ill.*

There is no food for the infant equal in all respects to the milk of a healthy mother. What may be said upon the subject in this paper will, therefore, be with the understanding that, from some cause beyond the control of the physician, the child has been deprived of Nature's provision. The market is glutted with baby foods, and our offices are invaded almost daily by agents employed to talk this food and that food into the doctors.

Many of our medical journals are full of articles which appear to be written in the interest of science, but which are, in reality, advertisements of the various preparations of infant food.

It is my object in this paper to speak from a practical standpoint. I will, therefore, say nothing about the milk of the wet nurse, the goat, the ass, or anything so generally unobtainable, but will confine my remarks to articles within our reach.

We find that in cow's milk we have a little more casein and fat, and less water and sugar than in human milk. The exact analysis given in Ziemssen, by Gerber, is as follows:

	Woman's Milk.	Cow's Milk.
Water.....	87.57	86.23
Casein and Albumen .....	1.95	3.70
Sugar.....	6.64	4.98
Butter .....	3.50	4.51
Salts.....	0.22	0.61

With the comparative analyses of the two milks as a basis, various experiments have been made as to what to add to cow's milk to make it similar to human milk, and by what method can it be preserved from the time of preparation to the time of feeding.

Josh Billings says, "You always think the fellow is smartest who agrees with you." I will, therefore, select from various authorities such ideas as are, in my opinion, the "smartest," and put them together, because they agree with my own as to the best general infant food, and the most reliable way of preserving it from changes.

Although food, as now prepared, may be kept sweet for a week or more, it is not best to prepare it for more than twenty-four hours, except in case of traveling, when it will not be possible to obtain reliable milk or prepare it. It is not well to rely upon a milkman for a supply for this purpose, for the churning it receives by being hauled about spoils it, and where so many

\*Read before the Iowa and Illinois Central District Medical Society, Davenport, Iowa, July 9, 1891.

kinds of milk are being handled they are liable to become mixed unintentionally.

The first thing to do is to get a good, healthy cow, one that is fed on nutritious food, and not on glucose-refuse or swill. Take the milk as it comes from the cow, immediately after milking, so that no change has time to take place. Add to one part of it two parts of barley water, prepared by boiling four teaspoonfuls of freshly-ground pearl barley, with a little common salt, in a pint of water, for fifteen minutes. Add to this about four teaspoonfuls of sugar of milk, and put it into plain feeding-bottles. This proportion is intended for a young infant, therefore the quantity to be put into each bottle should be about two ounces, and twelve bottles should be prepared each day. These bottles should then be stoppered with common cotton, and placed in an Arnold sterilizer, and steamed from three-fourths of an hour to an hour.

Then remove the bottles to a shaded place, where they are out of the way, and let them cool gradually. When you desire to use one, remove the cotton and throw it away, add a tablespoonful of lime-water, set it in a vessel of warm water until it is heated to a temperature of  $99^{\circ}$  to  $100^{\circ}$ , place a common nipple over the mouth of the bottle, and let the baby nurse it all if it pleases.

After the baby is through nursing, wash the nipple in a solution of carbonate of soda, and put it into a cup of solution of borax or boracic acid, and let it soak until you want to use it again, when it should be dipped in a solution of bicarbonate of soda. Don't scald it, for that will spoil the rubber.

The bottle should also be immediately well washed with a solution of carbonate of soda, and scalded. Then fill it with hot water to which has been added a teaspoonful of powdered borax, or boracic acid, and allow it to stand until the time for using again, when it should be rinsed out with bicarbonate of soda water.

In cases of obstinate constipation oatmeal-water should be substituted for barley-water, and if the cow be a Jersey I think a reduction of one-third the quantity of milk should be made. I have not noticed an analysis of the milk of a Jersey cow, but I know from experience that a less proportionate quantity should be used, for it contains much more fat than the milk of a common cow.

In this paper I have endeavored to mention briefly the little details which may appear to the inexperienced as matters of trifling importance, such as the care of the nipples, the bottles and so on, but I cannot impress upon you too strongly the importance of their strict observance. I have no doubt many of you have seen babies live and do well without such care, but it won't do to reason from that fact that such rigid regulations are unnecessary. Twenty-five years ago it was the exception for a bottle-fed

baby in a city to live. Now it is the exception, if fed in accordance with strict regulations, for the baby to die. Of course I refer to gastro-intestinal diseases. Many good authorities recommend a combination of cream, milk and water, instead of milk fresh from the cow, and I would suggest that it be tried if the food recommended in this article seems to disagree, but it has always struck me that, inasmuch as human milk contains less fat than cow's milk, the addition of cream would render it less likely to agree with a tender stomach.

Prepared foods are mentioned only to be condemned. Some of them do well in individual cases, but I look upon them, if good at all, as medicated foods, and I think it better for the physician to prescribe the medicine himself to suit the case. Many of them are simply money-making mixtures. I see no reason why anyone should select for his diet a conglomerate mass of stuff that nobody knows what it was originally, and less about what it may be when prepared for use, when he can have a diet that he knows to be absolutely pure and wholesome. Treat your baby as you would be treated, and give it simple food, prepared under your own observation, free as possible from ptomaines or germs of disease, and everything that is unclean.

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## THE TREATMENT OF ABORTION WITH THE PLACENTA RETAINED.

BY CHAS. ENFIELD, M. D.

The advantages of manipulation in the Sims position, in any operation upon the uterus, must have suggested to many practitioners a substitute for the old operation of finger extraction for the removal of the retained placenta. Gynæcological work has suggested to me, as it no doubt has to many others, the method of removal by the dull curette. The condition is analogous to the curetting operation for fungous endometritis, and the operative technique is essentially the same. It consists in placing the woman upon the table in the semi-prone position, retracting the perineum, seizing the cervix by the tenaculum, the use of a branching dilator if necessary, and the systematic employment of the dull wire curette. Subsequent irrigation of the uterus by the hot-water douche, and the patient can be carried to bed. Its advantages are, avoidance of further hemorrhage, and of septicæmia, because the uterus is efficiently and thoroughly emptied. I never could feel sure, while practicing the old method, that I had completely emptied the uterus. There is not sufficient freedom of movement for the finger to detach, and hook down, as is mentioned in the text-books. And in those cases where the os has closed after expulsion of the ovum, the tiresome waiting for the dilating action of the vaginal tampon is avoided. I bring this method forward on account of its merit, and as I have been able to contrast its better working, than that of the older method, in three cases

of accidental miscarriage occurring in my practice during the past month. In all three a subsequent visit was unnecessary, so well had the curette done its work. The method does not seem to be extensively practiced. A Southern gentleman, Dr. Brown, of Alexandria, read a lengthy paper containing some valuable points upon the treatment of miscarriage, before the last meeting of the American Medical Association, and his practice was that of manual extraction, with or without the tampon.

In looking over text-books, I find that Lusk, Playfair and Barnes make no mention of the curette. Cazeaux mentions it as an alternative, and Granden, in the *Cyclopædia of Obstetrics*, advises it, calling it Munde's method. Dr. Munde advises a uterine tampon containing a styptic, as a final measure, but in the average case this does not seem to be necessary. However, if hemorrhage should persist, packing the uterine cavity with a long strip of iodoform gauze would be, perhaps, preferable to the cotton pledgets soaked in iodine tincture. It was but recently that I was called in consultation to a case of septicæmia due to the decomposition of the retained secundines, the patient being at the time moribund, and death ensued in a few hours. Her physician has had much experience, but was unacquainted with the value of the curette. Do such cases ever get into the mortality reports as belonging to that omnibus disorder, "inflammation of the bowels"?

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## THE MUSEUM.

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### OUR FUNGUS FRIENDS.

STRANGE to say, mankind is benefited more by fungi than by any other species of the cryptogamic family. The devastation of dry-rot, of the ubiquitous mildew, are very generally known, yet the benefits conferred by fungi far outweigh their destructive propensities. To them may be rightly given the expressive name of the "Scavengers of Nature," for their work is the removal—and that, too, with a marvelous rapidity—of what is not merely a useless tenant of the earth, but an injurious neighbor, such as refuse and decaying organic matter. We have no idea of the numberless diseases arising from the exhalations of decomposing matter, from which we are freed by the help of these little plants. It is true their germs fill the air, but they are then "the unemployed," and are only waiting for "a job" on the desired material. As soon as such a substance is exposed the "scavengers" fall upon and cover the unsightly object with a variety of fungoid growths which multiply and develop with astonishing fertility. The peculiarity of their agency consists in their power of suddenly multiplying their numbers to a degree which could only be accomplished in an enormous lapse of time by any larger beings, and then as instantaneously



relapsing, without the intervention of any violent disturbing cause, to their former insignificance.

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If for the sake of employing on different, but rare occasions, a power of many hundreds or thousands of horses, we were under the necessity of feeding all these animals, at a great cost, in the intervals when their services are not required, we would greatly admire the invention of a machine which would be capable at any moment of exerting the same degree of strength without any consumption of food during the periods of inaction; and the same kind of admiration is excited when we contemplate the powers of fungus life. A scanty number of minute individuals, only to be detected by careful research, are ready in a few days to give birth to myriads, which may check or remove the nuisances referred to. But no sooner has the commission been executed than the gigantic power becomes dormant, the legions, before so active, return to their latent shape, and, like the spirits of the poet, "reduce to smallest forms their shapes immense."—*The Month.*

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#### SOME SAVAGE CONTRIBUTIONS TO CIVILIZATION.

MOST savage tribes possess two things in common with one another — a national beverage which they use at special seasons of rejoicing and festivity; and a poison of some description which they employ to test the guilt or innocence of their offenders; or, in time of war, an arrow-poison to insure a fatal result to the wound inflicted by the weapon. Both of these are always composed of a very powerful product of the vegetable kingdom, and it is therefore not surprising that most of the known agents have been taken advantage of by doctors and hygienists, and form important additions to the science of medicine and dietetics. Amongst the native beverages thus utilized may be mentioned the coca of the Peruvians, the kola of the West Africans, the kava-kava of the Fijians, the guarana of the Brazilians, and the maté of the Paraguayans; whilst amongst the poisons may be included the wourali or curare of the South American Indians, the oubaio of the Somalis, the strophanthus hispidus of the west coast of Africa, and the Calabar or ordeal bean of Calabar.

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THE three first-named poisons are used by the natives as arrow-poisons, whilst the last, as the name implies, plays the part of a relentless judge, and very often of an executioner at the same time. No doubt, many of our readers are aware of the mode of procedure. A meeting of the tribe is called together under the presiding genius of the medicine man, who, after sundry gesticulations and howlings, selects the victim, and forces him to partake of the poisonous beans. If report speaks truly a favorable or fatal result rests entirely with the prisoner. The natives say, if the man has

a free conscience he will not be afraid, but will eat largely of the beans, relying upon his fetich to preserve him ; whereas a guilty man will be fearful, and eat as sparingly as possible. Taken in quantity the beans act as an emetic, whilst a small dose insures death. In this country pharmacists extract the active principles, which are known to oculists and surgeons under the name of eserine and physostigmine, and are employed by them with most gratifying results in the various diseases to which the eye is subject.—*Chambers' Journal*.

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#### CAN MONKEYS TALK?

The "Missing Link" has at last been discovered. The last great barrier supposed to exist between man and his humbler brethren, that of articulate speech, has at length been swept away. At least, so it would appear from the result of a most laborious and protracted study of the vocal sounds emitted by monkeys, conducted by Mr. R. L. Garner. After nearly seven years of patient observation and ingenious experiment, his efforts have been successful to the following interesting and really remarkable degree :

Having described to some friends who were with me the word I would use, I stood for a while with my side turned to the cage containing a capuchin monkey (*cebus capucinus*). I uttered the word or sound which I had translated "milk." My first effort caught his ear and caused him to turn and look at me. On repeating it three or four times he answered me very distinctly with the same word I had used, and then turned to a small pan kept in the cage for him to drink from. I repeated the word again, and he placed the pan near the front of the cage and came quite up to the bars and uttered the word. I had not shown him any milk or anything of the kind. But the man in charge then brought me some milk, which I gave to him, and he drank it with great zest ; then looked at me, held up the pan, and repeated the sound some three or four times. I gave him more milk, and thus continued till I was quite sure he used the same sound each time he wanted milk.

I next described to the friends who were with me a word which was very hard to render well, but I translated it "to eat." I now held a banana in front of the cage and he at once gave the word I had described. Repeated tests showed to me that he used the same word for apple, carrot, bread, and banana, hence I concluded that it meant "food," or "hunger," as also "to eat." After this I began on a word which I interpreted "pain," or "sick," and with such result as made me feel quite sure I was not far from right. My next word was "weather," or "storm," and while the idea may seem far-fetched, I felt fairly well sustained by my tests. For many other words I had a vague idea of a meaning, and still believe that I can verify them in the end. These are only a few of many trials I have made to solve the problem of the simian tongue, and while I have only gone a step, as it were, I believe I have found a clue to the great secret of speech, and pointed out the way which leads to its solution.—*The New Review*.

## STATE ITEMS.

DR. E. H. HAZEN, of Davenport, has recently removed to Des Moines.

SEVERAL of the papers read at Waterloo are still in the hands of their authors, and the Secretary requests that they be forwarded to him at once, to be prepared for publication.

THE Iowa and Illinois Central Medical Association met at Davenport July 9. The officers were Dr. L. French, of Davenport, President, and Dr. Geo. L. Eyster, Rock Island, Secretary.

DR. J. M. BALL, JR., of Waterloo, has recently been elected to the Chair of Ophthalmology and Otology in the Keokuk Medical College, and will probably remove to that city in September.

THE College of Physicians and Surgeons at Keokuk has added a Lectureship on Rectal Diseases to its Faculty. Dr. Downing D. Nice, late Demonstrator of Anatomy, has been elected to the chair.

THE Committee on Publication consists of Dr. I. S. Bigelow, Dubuque, Chairman; T. S. Maxwell, Keokuk, and J. W. Smith, Charles City, with the Secretary and Treasurer *ex officio*, instead of as given in our last issue.

DR. LUDWIG V. HEKTOEN, Professor of Pathology in Rush Medical College, has been elected to the Chair of Surgery in the Medical Department of the State University, to fill the vacancy caused by the universally-regretted resignation of Prof. Peck.

DR. J. F. KENNEDY, of Des Moines, Secretary of the State Board of Health, has just sailed from New York on his way to the International Congress of Hygiene, to be held in London, August 10-17, to which he has been sent to represent the State Board.

OUR readers will have been saddened to hear of the death of our late Vice-President, Dr. S. B. Chase, of Osage, which occurred but a few days after the appearance of our last issue. The deceased was widely beloved and honored, both personally and professionally.

THE second session of the Capital District Medical Society, at Des Moines, June 11 and 12, was a decided success. A number of valuable papers were read, among which those of Drs. Kennedy, Currie and Pipino were deserving of special mention. Over 40 members were in attendance, and the closing banquet at the Kirkwood brought together some 35 couples.

THE seventeenth annual meeting of the Central District Medical Association of Iowa was held at Carroll, June 9, 1891, F. S. Smith, Vice-President, in the chair. Papers were read as follows: A. L. Wright, "Osteo Sarcoma," with specimens illustrating the disease. C. L. Wright, "Pterigium, a Simple Operation for its Removal." Dr. Fairchild reported a series of cases of perityphilitis, with result of operations. Dr. F. S. Smith, "Face Presentations." An interesting pathological specimen was presented by

Dr. Burt and demonstrated by Dr. Fairchild. Boone was selected as the place for holding the next meeting. The following officers were elected for the ensuing year: F. S. Smith, President; W. S. Schermerhorn, Vice-President; A. A. Deering, Secretary and Treasurer.

KEOKUK has a new hospital. The College of Physicians and Surgeons has acquired a large building near the center of the city and has fitted it up according to the latest mode, including a clinic room. Facilities for fifty patients have been prepared, and most of the medical men of Keokuk are interested in the new venture. Half of the staff are gentlemen not connected with the school, and the policy will be very liberal, although the control is vested in the College. The staff consists of Professors Hughes, Hillis, Barr and Dorsey, and Doctors McDonald, Weismann and Schaeffer.

THE late "June meeting" of the Dubuque Medical Society, a most enjoyable institution, is reported as one of the best ever held. It occurred at the Hotel Julien, Dubuque, June 16, and the program included the following: "Therapeutics of Pneumonia," Dr. H. S. Jenckes, Hazel Green, Wis. "Chloroform Anæsthesia," Dr. O. J. Fullerton, Waterloo. "Excess of Urea and the Urates," Dr. J. Oettiker, Platteville, Wis. "Wrinkles, or Methods and Details in Medicine and Surgery, with especial reference to little things," Dr. Asa Horr, Dubuque. "Neuralgia," Dr. J. F. McCarthy, Dubuque. Reports of Committees—(a) "Therapeutics," Dr. C. H. Hamilton, Dubuque; (b) "Surgery," Dr. J. H. Greene, Dubuque; (c) "Gynecology," Dr. I. S. Bigelow, Dubuque. "Microscopical Exhibit," Dr. Geo. Minges, Dubuque. A delightful banquet closed the proceedings in the evening.

THERE is a live and active medical society in Johnson county (Iowa City). On May 19, last, Dr. M. B. Cochran was elected President, Dr. C. M. Hobby Vice-President, Dr. L. W. Littig Secretary and Treasurer. Dr. F. Lloyd, the retiring President, Dr. A. H. DeLano and Dr. E. F. Clapp constitute the Board of Censors. At the meeting of June 2, Dr. Hobby read a paper entitled "The Results of Operative Procedures on Nose," giving the conclusions he has drawn from the study of many cases observed in private and consultation practice. The doctor was heard with interest, and elicited quite a discussion. An interesting cerebellar tumor was exhibited by Dr. Littig. On July 7 the paper of the day was read by Dr. James Murphy, entitled "A Study of Tuberculosis," followed by a long and earnest discussion. It is believed that the danger of infection exists not only for those who are in immediate contact with tubercular patients, but that the sputum of a tubercular patient indiscriminately cast on the streets may dry, and the bacilli, floating in fine dust, may be inhaled and the disease be communicated in this way;—this danger not existing in newly-settled countries, being at a minimum in farming communities and smaller towns.

## PUFFS FROM THE DOCTOR'S CIGAR.

ONE of the most suggestive signs of the times is the marked interest which the dear public is beginning to take in professional subjects. One can hardly pick up a newspaper without stumbling upon a column or so of "dietetic hints," accounts of recent discoveries, or fearful and wonderful reports of surgical operations, while the field of literature is fairly swarming with novels in which leprosy, insanity, hypnotism and other grisly influences are made the chief *dramatis personæ*. And such fiction is generally as distinctly pathological in character and influence as the subjects it treats of. If this sort of thing continues we shall be obliged, in self-defence, to add to our curriculum a course or Department, of Dramatic Pathology, to furnish those authors who incline to forge their pens into dissecting knives, with at least a smattering of the general principles of their chosen subject.

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WE append the following in the hope that some of our neurologist readers may be able to give us a diagnosis, or else a name, for this new and interesting morbid process. It is reported by the celebrated literary pathologist, Ibsen, and forms the keystone of the plot of his ghastly drama, "Ghosts." The characters speaking are Oswald Alvin, the son of a dis-solute Norse lieutenant and Mrs. Alvin, his mother.

*Oswald.* "The disease I have as my birthright is seated here" (*pointing to his forehead*), "yes, it is sitting here waiting; and it may break out any day — at any moment."

*Mrs. Alvin.* "Oh, what horror."

*Oswald.* "I've had one attack down there already. Oh, it is so indescribably awful, you know! If it had been merely an ordinary mortal disease! But this is so unspeakably loathsome. To become a little baby again! To have to be fed! To have to — oh, it is past telling!"

*Mrs. Alvin.* "The child has his mother to nurse him."

*Oswald.* "No, that's just what I won't have. I can't endure to think that perhaps I should lie in that state for many years — get old and gray. And in the mean time you might die and leave me; for the doctor said it would not necessarily prove fatal at once. He called it a sort of softening of the brain. I think that expression sounds so nice. It always sets me to thinking of cherry-colored velvet."

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WE don't half sufficiently appreciate the value of direct sunshine. All life, so far as we can understand it, consists in the conjuring up of the great Sun-Spirit by the mighty wizards Chlorophyll and Hæmoglobin, the emerald and crimson life-essences of the vegetable and animal worlds. A distinguished scientist has aptly and beautifully defined it as "organized sunlight." Of course we can and must obtain much of this literally vital element at second hand by combustion from "black diamonds" or hickory logs, and by digestion from bread and beefsteak, but no organism can really flourish without obtaining a certain proportion of its supply direct. "Basking in the sun" is in itself an exercise of real and considerable bene-

fit, and it is no compliment to our human intelligence to find that cats understand that fact much better than we do.

### N<sub>2</sub>O—NOH.

IN one of the remoter rural districts of the south there lived, a few years ago, a colored practitioner of but slender educational attainments, but with a good stock of native shrewdness, known in the community as "Doctor Bill." The "doctor" was quite a character in his way, amusingly ignorant, and yet possessed of such a fund of keen "horse-sense" and practical ingenuity that his reputation in the treatment of the less serious forms of "mis'ry" among his credulous fellow-Africans was widespread. On one occasion he was called to see a patient who, in the course of a "scrap," had been shot in the abdomen. Wounding of the bowel was suspected. When the bleeding had ceased, Dr. B., after frowning seriously for some minutes, prescribed a pill of equal parts of "*rozzum*" and *alum*. This seemed to fill the bill exactly, and the patient made a rapid recovery. The local M. D., meeting him shortly afterward, had the curiosity to ask him how under heaven he had come to use such remarkable remedies in that pill. The "doctor's" answer was prompt. "De alum, sah, wuz to draw de pahts togedder, and de rozzum wuz to make um stick." There is a flavor about this reply distinctly suggestive of the much-boasted "rational prescribing" or laboratory therapeutics of the last decade, but with this slight difference in the results, that the improvement did apparently "stick," which is more than can be said for—tuberculin, for instance.

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CAN this degenerate age show any specimen of "surgical enthusiasm" to match the following: Abernethy had been delivering a clinical lecture following a lithotomy, and, waxing eloquent with the interest of his subject, he finally burst forth, "Gentlemen! if there is no cutting for stone in heaven, I don't care to go there!"

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THE late Dr. Yandell, of St. Louis, was fond of telling the following joke on himself: A lady patient of his, on entering his consultation-room one morning, greeted him with the remark: "Doctor, I had such a singular dream about you last night." "Indeed," said the doctor, "what was it?" "Why, I dreamed that I died and went up to heaven. I knocked at the golden gate, and was answered by St. Peter, who asked my name and address, and told the recording angel to bring his book. He had considerable difficulty in finding my name, and hesitated so long over the entry when he did find it, that I was terribly afraid something was wrong, but he suddenly looked up and asked, 'What did you say your name was?' I told him again. 'Why,' said he, 'you've no business here. You're not due these ten or fifteen years yet!' 'Well,' said I, 'Dr. Yandell said—' 'Oh, you're one of Yandell's patients, are you?—that accounts for it. Come right in! come right in! that man's always upsetting our calculations in some way.'"

# THE VIS MEDICATRIX.

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APPENDICITIS.

BY I. S. BIGELOW, *Dubuque.*

Appendicitis is a disease of frequent occurrence, and may be followed by serious results under the most approved plan of treatment. The labors of the surgeon and pathologist within the last few years have demonstrated that at least ninety per cent of the cases of so-called Typhlitis and Perityphlitis are dependent upon, or associated with, some pathological condition of the appendix, and that the cæcum itself is the original seat of the disease in but a small percentage of the cases.

The admirable paper read by Dr. R. H. Fitz, of Boston, before the Association of American Physicians, and published in the American Journal of the Medical Sciences for October, 1886, did much to stimulate investigation into the pathology of this disease, and the conclusions drawn from his tabulated report of 257 cases of typhlitis, perityphlitis and appendicitis are of inestimable value in helping the physician and surgeon in the management of these cases. The literature on the subject has increased wonderfully in the last five years. A large number of cases have been reported with special reference to the conditions found and the plan of treatment pursued in each case. The great majority of cases reported are those in which suppuration or a perforation had occurred demanding immediate surgical interference. Statistics based on these results do not take into consideration the large number of unreported cases which have terminated in resolution or death without an operation. If the above statements are correct, it follows that the statistics we have are based upon the results of a large number of severe cases of the disease, made up largely of those cases which have been operated upon; and deductions made therefrom may be misleading if intended as a guide in the treatment of all cases of Appendicitis. How-

ever untrustworthy these figures may be as a guide to the treatment of the milder cases of the disease, they are of the greatest value in enabling the physician to reach conclusions as to the causes of this affection in a large percentage of the cases.

The peculiar anatomical conformation of the appendix veriformis is cited as one of the most prolific predisposing causes of the disease. Its length varies considerably, from one and one-half to three or four and even as long as six or eight inches. Its diameter is about that of a goose quill. Its direction is upward and backward. It terminates in a blunt point, which is held in position by a fold of peritoneum. It lies behind and partly internal to the cæcum, and is not brought into view by exposing that organ, but when distended may be felt behind it. The cæcum, by its peculiar conformation, tends to favor the entrance of foreign bodies into the orifice of the appendix. The cæcum is a receptacle for the contents of the small intestines; when empty it is in a relaxed condition, lined by large folds of mucous membrane, where foreign bodies may lodge and act as irritants, or find easy access to the orifice of the appendix; when distended, the size of the cæcum may be enormous, and the power of re-emptying itself completely lost. With these anatomical conditions, anything interfering with the natural free movement of the contents of the bowels, such as a tumor pressing on the colon, enlargement of the liver, chronic constipation, indigestible food, etc., favors the admission and retention of foreign bodies in the appendix. Fitz found a fecal concretion or other foreign body in three-fifths of the cases of Appendicitis. An ulcerated and perforated vermiform appendix is the essential pathological element in a majority of the fatal cases. Sex and age influence the disease largely. About three-fourths of the victims are under thirty years of age, and 80 per cent of them are males. I have collected ninety cases and classified them with special reference to age, sex, diagnosis and treatment. Of these ninety cases 73 per cent were under thirty years of age; 76 per cent were males, 24 per cent females. The diagnosis in 86 per cent of the cases was Appendicitis, 10 per cent Perityphlitis, 4 per cent Typhlitis. It was noticeable, in collecting these cases, that those more recently reported were, in nearly every instance, cases of Appendicitis, while a few years ago the names Perityphlitis and Typhlitis were used frequently. The treatment in 71 per cent of these cases was by operation. In some instances the operation consisted in simply opening a pus cavity and allowing the pus to escape. In other the appendix was sought for, ligated and removed, in others still, where a general peritonitis was found, the whole peritoneal cavity was thoroughly irrigated and drained. The results of operative procedure, taken as a whole, were 65 per cent of recoveries; 29 per cent of the cases were not submitted to any operative procedures. Of these 75 per cent recovered. In over half of the cases (54 per cent) in which operative pro-



cedures were resorted to, the operation was done during the first week, in a number of instances as early as the second or third day. Of these 57 per cent recovered.

In a little less than half of the cases (46 per cent) the operation was done after the first week, in one case as late as the sixtieth day. Three out of four of these cases recovered. In the fatal cases, death occurred during the first week in a little over one-half of the cases (53 per cent). Generally speaking, the diagnosis of an inflammatory process in the right iliac fossa is not difficult if we are pains-taking and have in mind the fact that this region is frequently the seat of a localized inflammation; but it must be borne in mind that these attacks do occur very frequently without giving rise to any characteristic symptoms of the disease. The fact that the appendix shows evidence of former disease in about one-third of the autopsies where this organ is carefully examined, is strong evidence that the symptoms in many of these cases are misleading, that in many others there are no symptoms, and that the "belly-aches" of childhood are due in many instances to an inflammatory process affecting this organ. Pain is the most constant symptom complained of. There is, in addition to pain, elevation of temperature, the presence of a tumor, a tense condition of the abdominal muscles and tenderness on pressure over the right iliac region. For some days there may be prodromata consisting of loss of appetite, vomiting, and irregular action of the bowels; constipation is present in a majority of the cases. The medical journals of the last few years have contained so many excellent articles, with reports of cases of appendicitis that I do not consider it necessary to dwell at any length on the symptomatology of this disease. We are all more or less familiar with the symptoms usually presented in this class of cases. The question of vital importance with us to-day is what is the best treatment for the individual case. The treatment of all these cases may come under three general heads, viz.:

1. That by Opium.
2. That by Laxatives.
3. Surgical Interference.

The use of opium and its adjuncts in an inflammatory condition of any of the abdominal organs is good practice. Aside from operative procedure nothing can take the place of opium. Where general peritonitis is threatened or has occurred, opium is the one remedy indicated, but if it is to be relied on it must be pushed. By the opium treatment I mean the free use of opium, not sufficient only to quiet pain, but enough to absolutely set at rest all peristaltic motion. It is given to limit the extent of the inflammation by putting the parts at rest. The idea to be kept in view if you have decided to use the opium treatment, is to make your patients sleep twenty-four hours every day.

The use of the Laxative treatment is called for especially in cases dependent upon impaction of the bowels, and in cases where there is a tendency to lymph exudation with resulting adhesive bands glueing the intestines together and thus causing obstruction of the bowel. In these cases the use of saline laxatives, if given at the proper time and with ordinary skill and watchfulness, will stand the test of time. They are given with the object of lessening the amount of exudate and consequent adhesion. Opium may be given with the laxatives, but here it is given for the purpose of quieting pain, and is given only when necessary for that purpose. The greatest interest centers in the surgical treatment of this disease. The indications for opium when we use it are usually clear, and even if we have made a mistake in its use in a given case, the mistake of putting the parts at rest is usually a safe one to make. With surgical interference it is different. The error of doing an unjustifiable operation is no more serious than the failure to operate where operation is plainly indicated. The question arising in this connection is, What are the indications for operation? This is difficult to answer. It is impossible to formulate a set of rules that may be relied upon as a safe and correct guide in every case of appendicitis. We are able to judge of the pathological conditions present only by the symptoms we usually associate with such conditions. In this disease the symptoms are not constant; they are irregular and oftentimes deceptive. An exploratory operation based on the diagnosis of appendicitis regardless of the severity of the symptoms, is not warranted. This statement is based on the following facts, viz.: the mortality after operation is high, recurrence after operation is not infrequent (44 per cent in all cases, medical or surgical treatment makes little difference—Fitz); and further, at least one-third of the cases end in resolution without operative procedures of any kind.

The indications for surgical interference, or rather, the time when it would not be safe to continue conservative measures longer, might be stated as follows:

An early diagnosis of appendicitis has been made. The patient is kept at rest in bed and anodynes given in moderate doses sufficient to quiet peristalsis, but not to the point of masking the symptoms. Local applications are applied over the cœcum and appendix, preferably the ice bag. If at the end of the first day nausea has disappeared and the temperature has remained normal or has not risen more than one degree, and the pulse but slightly accelerated and tenderness on pressure has not increased, continue conservative measures. If no tumor develops and the condition continues one or two days longer, conservative measures are still called for.

In other cases there is a high temperature in the beginning with a full pulse, nausea, pain and tenderness. If these symptoms do not increase, continue conservative treatment and wait. If these symptoms continue to advance after an interval of twelve or twenty-four hours, then the question

of immediate operation arises. A steadily rising pulse is dangerous. The pulse is a more reliable symptom than the temperature. A fall of the temperature with pulse remaining high is not a sign of improvement. If the pulse has gradually reached 120 and remains there in combination with other symptoms, especially tympanitis and the presence of a tumor, an immediate operation is strongly indicated.

An examination per rectum should never be omitted. Abscess may form in the cellular tissue about the appendix without ulceration or perforation of that organ. If the abscess points low down it can be reached and successfully evacuated by the rectum. If the appendix in a given case was perforated or in a gangrenous condition, and we knew it, there would be little question about the propriety of operating for its removal, but we cannot name the signs of impending perforation. Recurrent cases should be operated upon for the removal of the appendix when the attacks are so frequent and severe as to prevent the patient from earning a living or indulging in the ordinary enjoyments of life. In operating for the relief of appendicitis, if the evacuation of pus is all that is desired, the incision should be made as low down as possible. If the pus cavity is adherent to the abdominal wall no difficulty will be experienced. Practically such an abscess is extra-peritoneal. In opening abscesses that are not adherent to the anterior abdominal wall, a drainage tube should be used and the wound packed thoroughly with iodoform gauze around the tube. In any case where the abdominal cavity is opened the appendix should be sought for, and if possible removed. In conclusion I would say: medical treatment of these cases is admissible up to a certain point, which is not measured by time, but by the severity of the symptoms in the individual case; beyond a certain point surgical treatment offers the most encouraging results, the prospects of recovery then diminishing in proportion to the delay.

#### REPORT OF THREE CASES OF APPENDICITIS.

*Case 1.*—B., a male, age 25, occupation physician, previous health very good. One morning in March, 1884, slight abdominal pain was felt. This was temporarily quieted by  $\frac{1}{4}$  grain of morphine. Later in the day the pain became so severe that it was necessary to remain over night some six miles from home. By noon the next day, the pain, under the influence of anodynes, had subsided, and the patient ventured driving the other six miles home. This was the last riding done for four weeks. The bowels were constipated, nausea and vomiting occurred at intervals, abdominal pain and tenderness increased and finally became localized in the right iliac region. The temperature did not exceed  $101^{\circ}$  until the sixth day when it rose to  $103^{\circ}$ . The pulse ranged between 80 and 100 until the sixth day when it reached 120. At this time the pain suddenly became intense, vomiting occurred, a profuse perspiration followed, and though much prostrated

relief was immediate. The vomited matter contained a large quantity of curded milk. Improvement now took place, but was followed in four weeks by a recurrence of the disease in a more chronic form. A tumor developed which could be felt externally and by the rectum. The bowels became obstinately constipated and remained so for over a year. This was best relieved by saline laxatives in large doses. The stools were liquid or semi-solid, and contained large quantities of thick, glairy mucus, and at times pus and blood. A slough was passed about four months after the first attack. Recurrent attacks of moderate severity were frequent for two years. For the past five years there has been no recurrence of the disease, and the patient is now in good health. The treatment of this case was rest, opium, laxatives, hot poultices and liquid or thoroughly digestible diet.

*Case 2.*—Frank P., a boy 8 years of age, was visited by Dr. J. F. McCarthy, December 31, 1890. He had been complaining for three days, had pain and tenderness in the right iliac region, chills, pulse 130, temperature  $99\frac{1}{2}^{\circ}$ . Typhoid appearance. Examination per rectum revealed nothing. There was a circumscribed spot, tender and somewhat hard, felt in the right iliac region. Diagnosis, Appendicitis. The boy gave a history of having been struck in this region by an ax-handle some days previously. The next day, January 1, 1891, in addition to increased tenderness externally, a tender spot was found by rectal examination, located high up on the right side. January 2d, tumor felt easily per rectum; general appearance of patient better. January 3d, the seventh day of the disease, the patient had a large dejection containing a large quantity of pus. He made a rapid and complete recovery. The treatment consisted of anodynes, very small doses of calomel, 1-20 grain every two hours, liquid diet and rest.

*Case 3.*—Dr. John S. Lewis' patient. Eugene L., male, age 13 years. On September 12, 1890, swallowed a plum-pit. One week later began to have abdominal pain, located chiefly in the right iliac region and hypogastrium, increased by movement. Temperature  $99\frac{1}{2}$ , pulse 116, bowels constipated. On 24th, the fourth day, the temperature rose to  $101\frac{1}{2}$ , pulse 112, bowels moved several times; passing of flatus produces pain, several efforts made at stool, some clear mucus passed. A swelling in the right iliac region discovered by rectal examination. The next morning the temperature rapidly rose to  $103\frac{1}{2}$ , pulse 116, but during the day fell to normal and the pulse to 96, and patient began to perspire very freely. The sixth, seventh and eighth days the temperature was normal and patient quite comfortable. At this time he was having frequent passages of clear mucous and mucous mixed with alvine discharge. An enlargement in the right iliac region was now distinctly made out. The ninth day quite comfortable, slight rise of temperature. The 10th day the temperature became subnormal. Dr. Fenger, of Chicago, aspirated per rectum, removing six fluid ounces of foetid pus. The patient made a rapid and complete recovery.

## DISCUSSION.

DR. SCHOOLER: *Mr. President*,—It is true that perhaps a large number of inflammations in the vicinity of the ileo-cæcal valve may be treated medically, and successfully so, and that operation in a large percentage of cases is not indicated, especially during the first attack. But the history of these cases is, that repeated attacks are the rule, and that one who has been the subject of inflammation in the vicinity of the ileo-cæcal valve is likely to have other attacks. So that perhaps in the great majority of the cases the patient will eventually have to submit to a surgical operation before relief is obtained. I believe in the old rule, that wherever pus is found the indication is to liberate it, and it is no less true of pus in this locality than in any other, whether it be confined locally or whether it have suppurative peritonitis connected with it. The tendency is for adhesive bands to become stronger and stronger, and operation is performed frequently for relief of intestinal obstruction caused by this obstacle. To go back a moment to the symptomatology: while the paper dwelt on that slightly, I think there is one point that might be dwelt on with advantage,—what is known as McBurney's point, in the diagnosis of these cases. It was first described by McBurney as a tender spot midway between the umbilicus and the anterior superior spine of the ilium.

My experience agrees with that of several others, that the spot is slightly above rather than below the point, but in all cases that I have seen, I think the rule is that whenever there is a tender spot in that locality it is pathognomonic. Now the temperature may or may not be a guide as to the presence of pus. I remember one case distinctly, in which a large quantity of pus was evacuated, in which the cæcum was perforated, and pus was formed in the abdominal cavity, that there never was any elevation of the temperature during the course of the disease, either before or after the operation. The fact of the pulse being a more reliable guide than the temperature in these cases is somewhat new to me. I am inclined, and always have been inclined, to think when the pulse went up rapidly without rise of temperature that it was not a matter of very much importance, and I have always looked upon the fact of the temperature and pulse coming up together as being more important than any other symptom. I am inclined to slightly differ with the writer on that point; however, he may be more nearly correct than I. I do not know any way in which a suppurative appendicitis can be treated successfully, except by evacuation, though occasionally spontaneous evacuation may occur. But I would always rather make the laparotomy myself than to await nature's process. As regards the use of opium and salines in these cases, both are pretty largely to be avoided in cases that come under the care of surgeons, that is, strictly surgical cases. I have stopped the system, in appendicitis, of

giving opium and thereby encouraging the friends to believe the danger was past, because the patient was easy and comfortable, and allowing the time for operation to slip by under the delusive impression that opium had effected a cure. I would not give the salines for the reason they would have no effect in relieving the accumulation of pus and the obstruction from swelling or from the lymph thrown out.

DR. I. W. SMITH, (Charles City): *Mr. President*,—I once had the benefit of Dr. Christian Fenger's opinion regarding the differential use of opiates and salines in cases of peritonitic symptoms. In ordinary and ill-defined cases he would adhere to the use of opiates; but where symptoms arise after laparotomies, and where presumably there is present a large amount of serous effusion, liable to become purulent, he would use salines to produce absorption before suppuration arises.

DR. MCCARTHY (Dubuque): *Mr. President*,—I think the location suggested is correct, provided the appendix is in the right place, where it ought to be, but very often we find it is on one side, or hanging down, and then the mark from the crest of the ilium would be of little value.

DR. HORNIBROOK (Cherokee): I want to make one point in reference to the temperature being a safer guide than the pulse, or the pulse being a safer guide than the temperature, in the diagnosis or prognosis and treatment in peritonitis. I do this, sir, because I am on record in the published minutes of this society showing that you can have peritonitis, both septic and purulent, general peritonitis and pelvic peritonitis, run its whole course without any elevation of temperature. And I think the doctrine as received and taught by the older writers is not taught any longer by modern writers. That in peritonitis you have uniformly a rise of temperature, is a pernicious doctrine. We know that peritonitis will run its whole course without a rise of temperature, and that the thermometer is not a guide either to the treatment or prognosis in any case in which peritonitis is involved.

DR. GUTHRIE: *Mr. President*,—In considering the point of the success or failure of operations in this class of cases, I think two things ought to be kept clearly in mind. First: The great likelihood of the successful cases going on record, and, second: The severity of those cases which have been subjected to operation. We all know the marked severity of those cases which are made the subject of operation must have a good deal to do with the course and the after treatment of these cases, and it is the severer cases, those cases that are characterized by intensity of the symptoms and rapid progress pathologically, that are subjected to this kind of surgical treatment, and consequently the statistics give more weight to the success of this operation. In regard to the time for the occurrence of the operation, the statement of Dr. Robert Abbé, of New York, comes to my mind, in reference to a case that occurred there when I was taking a Post-Graduate course. The case was that of the house surgeon of the Post-Graduate

school, who was attacked with acute Appendicitis. The case was treated expectantly by the use of opiates, and later in the case an operation for his relief was performed, but the operation was too long delayed. In the comments made by Prof. Abbé at that time, he stated that his conclusion, from a wide practice and wide experience in the operation, was that large proportion of the failures in these cases came from undue delay of surgical interference, and he emphasized particularly the point brought out by the paper, that the presence of pus was the correct criterion in demanding such interference.

DR. BIGELOW: *Mr. President*,—I do not believe, at the present day, it is possible for any man to lay down certain indications for this operation and so give us a rule to know when the operation shall be performed. I have in mind one man, if any one man is capable of doing that, he is. That is Dr. R. A. Fitch, of Boston. I believe the indications for this operation will be laid down when one man has observed a large number of cases. The symptoms are so different that it is impossible for me to give a report of cases and collect a thousand cases and place a correct opinion on the whole of those cases; I believe the idea is better that one man collect a large number of cases and give his opinion and then another man collect a large number of cases, each from his own observation. We have some cases on record of an operation very early; just as soon as seen; we have cases of perforation where there is pus, the secretion gets in the cavity and an operation is demanded at once; we have other cases where they will recover; we do not always know they will, but they will recover if we let them alone. The question is, When shall we operate?

In regard to the saline laxatives, I believe they have a place in the treatment of this disease; not particularly in the surgical treatment, but they have a place and I mention their use. I also mention the opium treatment, because I believe it has a place.

The McBurney point I don't pay any particular attention to, because we have several tender points in these cases. Very frequently we have that particular point. I know pretty well what it is, because I have felt it a good many times myself. The pulse, I believe, is a more correct indication than the temperature. Of course, if we have pulse and temperature running together, and other symptoms present, there is no doubt. I mention the pulse particularly for this reason, so that we would not be misled by a low temperature with a rising pulse. Of course, the pulse may run up for an hour to 120 and drop down again; that does not necessarily signify, but a rise of the pulse to 120 and its remaining there for any length of time, say two hours, means something.

FRACTURE AND RECOVERY OF USE OF THE NECK OF  
THE FEMUR.H. C. MARKHAM, M. D., *Independence.*

Mrs. P., age 71, large stature, and much emaciated by chronic bronchial disease, with the usual cardiac valvular complications, while attempting unaided to rise from her bed, November 28, 1890, was taken with vertigo, falling heavily upon the right hip and side. Finding all control of the lower limbs, especially the right, to be lost, her cries soon brought aid, and assistance back to her bed, where one hour later I found her in extreme collapse,—surface cold, rigors, pulse thready. Suspecting the nature of the injury, I passed my hand beneath the right hip, thus eliciting, even in her semi-moribund condition, evidence of pain; but no external signs of any lesion or bruises, on casual inspection, were apparent. Prompt employment of heat and stimulants barely succeeded in restoring reaction from the collapse, which reached a degree commensurate with the latter, and continuing nearly twelve hours, temperature being quite elevated,  $101^{\circ}$ , with slight delirium, all of which, and alone, in the absence of any external signs of injury whatever, betokened grave concealed lesion.

Systemic dangers abated, an examination of the right side, hip and limb discovered the latter normal in position and length, no shortening or eversion of toes, the *trochanter* was, to an unmistakable degree, and discernible to an ordinary observer, *flattened* and slightly anterior to its normal place. In spite of the absence of local pain, shortening and eversion of the limb, a diagnosis of *fracture* of the cervix of the femur was made. The day after the injury, I was unable to elicit pain by careful but very strong extension or pressure of the thigh in the line of the axis of the body, the same weakening my diagnosis, and others, in ratio to the force I used. By this time our patient was tired of the "*decubitus dorsalis*," her impatience not lessened by the seeming uselessness of the former, and complying with her appeals to be turned, we proceeded to attempt, by the help of two nurses, to secure that movement, whereupon, after its being about half-way reached, our patient shrieked suddenly with pain, and the limb instantly *shortened one inch*. It then rested beside and upon the other, and no mistake was possible. The return to the patient's former position itself restored the limb to normal length. This cured farther requests, during seven weeks, for such change of position by the patient, greatly as it was desired. Seeing the limb and hip were free from pain when let alone, moreover normal in length and position if so treated, we concluded to subordinate the questions of intra, extra, impacted, or partial fracture, thus avoiding an equal number of manipulatory examinations, and, with the specter of a malpractice action hovering over the bed, simply padded the flexures and depressions of the



limb with the softest cotton, using the same to support the foot, and thus rest the tibial muscles. This was the *surgery proper* of the entire two months' *active care* of the case. Three weeks of total vesical paralysis, and four of the rectum, were, by the absence of splints, dressings, devices and appliances *ad infinitum*, deemed essential to the welfare of the surgeon and patient in these cases—these aforesaid *truly vital* and fatal complications easily placed under control. The bladder twice inspected daily, that in spite of convenient catheterization became foetid and purulent. Without this ready access to these cavities, the same implying prevention of bed sores, it seems an apparent *absurdity* to expect recovery of these aged patients with an honest attempt to treat them by splint fixations. My case realized voluntary fixation, or no movement of the limbs for seven weeks. That it was gravely injured found another verification in its cedema from the knee to the foot. This, from its free access, was actively combated, but not removed, by liberal use of lotions, massage, etc. At the eighth week we helped the patient to her feet, these touching the floor at equal levels. Meantime reparative work at the point of fracture had been promoted and assisted by the improved nutritive and otherwise general tone of her system, which at the end of the term of treatment found her in better flesh, strength and health than for many years. Here is the key and condition to any possible degree of desirable union, be it ligamentous, osseous or what-not, at this perilous point of severance of bone continuity, and at this grave period of human life. At this date our patient walks well and easily by the aid of a small cane, and this more a mental than physical dependence. To any reader of doubting views as to the true premises of fracture in this case, it must be possible for him, aside from our history of its shortening under change of position of the femur and pelvis, with restored length on resumption of the same, to explain the present abnormal position of the trochanter. There was never a true fracture if this was not, and never a more forcible lesson of the value of rational, *indicated* treatment, where it runs counter to precedent and dogmatic rule—fatal to patient, but essential to professional safety—as based upon errors and violations of truth now visible under modern light and researches.

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#### SUPPURATIVE LEPTO-MENINGITIS.

R. E. CONNIFF, M. D., *Sioux City.*

Suppurative inflammation of the envelopes of the brain occurs either as a circumscribed or diffuse affection, which may be limited to the dura alone, or involve all the membranes and the cortical substance of the brain itself. It is due to infection, directly or indirectly, with pus microbes. Direct infection occurs in those injuries when the membrane is brought in

communication with the external air. Indirect infection, when there exists epicranial suppuration, osteomyelitis of the cranial bones, or the infection may extend by way of the blood vessels.

Injuries without microbial infection may produce circumscribed, plastic, or degenerative lesions, but not suppuration.

If this microbial infection is confined to the dura alone, we have a circumscribed or diffuse pachymeningitis, which may result in an abscess on either surface of the dura mater. When the suppuration occurs between the dura mater and the cranial bones, we have what is commonly found in trephining for depressed fractures—a sub-cranial abscess, or if the pus microbes wander deeper into the dura, and suppuration occurs on the inner surface, a subdural abscess is formed. The diffusion of pus between the dura mater and the arachnoid in subdural suppuration is prevented by plastic exudation which cements these membranes together. I, myself, have seen two such cases, in one of which three or four drachms of pus was found beneath the dura mater. In both cases the evacuation of the abscess relieved the pressure symptoms, and the patients made good recoveries under proper antiseptic treatment.

An extension of this infective inflammatory process to the arachnoid and pia mater, with more or less implication of the cortical substance, is termed by pathologists, who maintain that the intimate vascular connection between those structures preclude the possibility of an inflammation of one membrane without the involvement of the other, a "lepto-meningitis."

This form of intra-cranial inflammation always results in suppuration if sufficient time elapse for the emigration and proliferation of the leucocytes, and their transformation into pus corpuscles.

In certain cases where the inflammation remains more or less circumscribed, small abscesses form on the surface of the brain. There being no connective tissue-spaces, the tendency is for the pus to burrow in the direction of least resistance. In this way small cortical abscesses are formed which may become confluent, forming one large abscess cavity. A chemical decomposition takes place which results in the production of very diffusible alkaloid substances, the ptomaines, and the ptomaines in turn exert a powerful influence over the vasomotor nerves, causing a marked dilation of the blood vessels, and a consequent hyperaemia results. The vessels lose their impermeability, and the white corpuscles permeate the vessel wall, producing the characteristic swelling of inflammation. This infiltration interferes with the natural circulation, and invites the invasion of leucocytes, which finally liquefy, forming an abscess. In other cases death results before suppuration occurs, where the symptoms of diffuse lepto-meningitis was unmistakable a few hours after injury, the correctness of the diagnosis being revealed by subsequent autopsies.

The clinical history of suppurative lepto-meningitis has much in com-

mon with other endo-cranial inflammations. Sometimes it is ushered in by a distinct chill or by a chilly sensation, an abrupt elevation of temperature, which may in a few hours reach 102 to 103 degrees F., with a correspondingly high pulse rate. In other cases the onset is more gradual, the rise in temperature not so abrupt. Headache is an early and almost constant symptom. It may be referred to the seat of injury, or starting from that point, may extend over the greater portion of the head, usually most severe at the base of the brain or in the temporal regions. Morbid sensitiveness to sound is a very prominent symptom, restlessness, sleeplessness, dizziness, ringing in the ears, intolerance to light, etc., are among the early symptoms as described by the patient. The most constant objective symptoms are the flushed face, suffuse conjunctiva, coated tongue, vomiting, constipation, restlessness, and finally delirium and convulsions. As the inflammatory products are poured out, other and graver symptoms manifest themselves: hebetude of mind, drowsiness, dilation of one or both pupils, which do not respond readily to light, increasing stertorous breathing. Paralysis of certain muscles or groups of muscles, indicates the extension of the inflammation to the motor centers in the vicinity of the fissure of Rolando. The pulse, which was at first firm and rapid, now becomes slower as the pressure symptoms increase, sometimes as slow as thirty-five or forty a minute. For the pulse to again become rapid, is said to be a sure sign of approaching dissolution. The temperature ranges throughout the disease from  $98\frac{1}{2}$  to  $103^{\circ}$ . When pus is present in considerable quantities, the temperature may fall even lower than this, and a sub-normal temperature is often recorded where there is a pus cavity in the substance of the brain. If there is loss of any considerable portion of the cranial bones, the intra-cranial pressure will cause the dura to bulge into the wound. When the extension of the inflammation reaches the motor centers, involuntary discharges from bowels and bladder may occur; listlessness gives place to profound coma; the face, which up to this time was flushed, now becomes pale and ashy, and the body covered with cold perspiration.

Suppurative lepto-meningitis may run a rapid course, a fatal termination ensuing in the course of a few days from general meningeal inflammation. In a certain proportion of cases, particularly those that have their origin in caries of the cranial bones where the tissues that the micro-organisms feed upon are more dense and resist the invasion of the microbe, the development is more gradual and may take three or four weeks to set up an active inflammation in the brain coverings.

In those cases the surgeon is apt to be misled by the seeming calm which breaks out with increased and unexpected violence in about twenty to thirty days.

## TREATMENT.

The treatment of endo-cranial suppuration is, in the main, prophylactic.

Every wound of the scalp, however slight, ought to receive prompt and careful treatment. The prevention of septic conditions is the best possible precaution against troublesome endo-cranial inflammation.

Compound fractures of the skull, when treated early with antiseptic care, seldom prove fatal when the brain is not lacerated to an extent that recovery is impossible under any circumstances. Even trephining, when carefully done, is not usually attended by unfavorable results, when care is taken to prevent infection of the wound, and thus guard against the occurrence of endo-cranial suppuration.

The same rules hold good here that aid in the prevention of suppuration and healing of wounds in other tissues.

In injuries to scalp, when possibilities exist of inflammation of the brain or its coverings from infection with pus microbes, the strictest antiseptis should be carried out.

The scalp should be shaved, then washed with warm water and soap then with bi-chloride solution, and followed by a thorough cleansing with ether or alcohol to render it aseptic.

The wound should be irrigated with bi-chloride solution, and freed from all loose tissue, foreign substances and blood clots. Loose fragment of bone should be removed, or rendered aseptic, and reimplanted.

If the dura be ruptured or incised, all loose fragments of membrane or brain substance should be removed, the sub-dural space carefully disinfected, drainage established, and the wound dressed with the strictest attention to antiseptis. Should the wound after the first dressing present evidence of beginning suppuration, the suture should be removed, the wound carefully irrigated with hydrogen peroxide, washed out by a bi-chloride solution, and again closed with careful precaution in regard to drainage at most dependent point.

Should this second disinfection fail, daily irrigation will be found necessary with antiseptic solutions.

Fractures at base of skull, communicating with ear, are best treated by disinfecting the meatus, and packing with iodiform gauze or salicylated cotton. I have lately treated one such case where the evidence of fracture through the petrous portion of the temporal bone was unmistakable, in this manner with most gratifying results.

Fractures communicating with the posterior nares may be disinfected by means of the nasal douche.

Lepto meningitis arising from epi-cranial inflammations or caries of the cranial bones, is best treated by attention to the primary diseases.

In certain cases, after the utmost care and attention has been given,

symptoms that point unmistakably to the beginning of a lepto-meningitis manifest themselves. The early disinfection of the infected surface, I believe to be the imperative duty of the surgeon.

Diffuse lepto-meningitis is a fatal disease. Localized lepto-meningitis, where irreparable injury to the brain does not exist, may terminate in recovery under proper antiseptic treatment.

I believe the early and intelligent use of the trephine, promises in this class of cases, more recoveries than have hitherto been recorded.

The study of cerebral topography and localization will often help to make an early diagnosis, when the operation of trephining promises much more than when done after the extensive involvement of the membranes has taken place.

Early operation, if necessary, in more than one place, the removal of depressed fragments with the strictest possible antiseptics and frequent irrigation, will I believe, save some cases that otherwise are doomed to certain death.

I wish to report the following case because of its unusual interest :

On the evening of November 9th, J. J. M., aged 20, by occupation a railroad switchman, called at my office to have a wound dressed, received on the night of November 5th.

On examination, I found a wound one and one-half inches long, beginning at a point three-fourths of an inch to the right of the median line, and one inch above the upper border of the orbit, extending in an oblique direction downward and outward.

The wound had never been dressed nor washed. Its edges were gaping and sloughing and was said to have been produced by a blow from a mallet.

After carefully probing for evidence of fracture, being unable to find any, the wound was irrigated with a bi-chloride solution, the sloughing edges pared, stitched together and dressed antiseptically. Union was had by first intention in the course of a few days.

The patient treated his wound with indifference, and continued his work—there being no evidence of brain injury of any kind—for about a week, when he called on me, saying that the wound had not entirely healed. I again examined it very carefully, found no evidence of fracture, and only slight separation of scalp. The wound was again dressed antiseptically, drainage provided, and the patient returned to his work. The wound seemed to heal readily, and I heard no more of my patient for a number of days. I had instructed him to report to me on the first indication of severe pain in the head or other grave symptom.

On the evening of December 3 he again called. Said he had not followed my directions. The wound had not been doing so well. Was discharging, and had become quite swollen and painful.

The following morning ether was given, the wound opened, it being

evident that denuded bone was present. The external table was found to be fractured, but not depressed. The line of fracture being almost circular, a flat piece or flake of bone was removed, one-half inch in diameter, the edge scraped carefully and the wound dressed with strict antiseptic precaution, provision being made for drainage. At this time there was considerable pain in head, pulse and temperature normal. There was not present any evidence of compression except pain. It was not thought advisable to trephine.

December 10. Temperature 99.8°, pulse 58, severe pain in head, face flushed, conjunctiva injected, patient irritable and restless, intolerance to light and sound, wound looking well.

Dec. 6. Temperature 99°, pulse 62, much the same as yesterday, had spent a restless night.

Dec. 7. Temperature and pulse same as yesterday, pain more severe in head, wound doing well.

Dec. 8. Temperature 99.5°, pulse 63, pain not quite so severe, pulse not so full and somewhat irregular, patient don't seem so well.

Dec. 9. Temperature 99°, pulse 48, very irregular, patient dull and listless, does not complain of pain, wound does not look so well, discharge thin and unhealthy.

Dec. 10. Temperature not taken, pulse 53, very irregular, patient in same condition as yesterday, wound same as then described.

Same day, 1 P. M. Pulse still irregular, suffusion of face disappeared, now pale and covered with perspiration, patient very listless, hard to arouse, discharge involuntary, complete hemiplegia.

Skull trephined, internal table found slightly depressed, dura congested with and bulging into opening made by instrument, sub-dural abscess suspected, careful exploratory puncture made by hypodermic needle, dura incised and pus evacuated estimated to be about three drachms. The wound was thoroughly irrigated with the bi-chloride solution, and, as before, dressed with antiseptic care, provision being made for free drainage.

The patient began in a few moments to move the paralyzed limbs, and by the time the effects of the anæsthetic were gone had regained complete control of both arm and leg.

At 5 P. M. on the same day the temperature was 101.2°, pulse 30, full, regular, the pain in the head had disappeared, the patient seemed bright and quite talkative.

Dec. 11. Morning. Temperature 101°, pulse 80. Evening. Temperature 101.6°, pulse 90, wound dressed as before, some slight discharge of pus, bulging of dura moderate, patient bright and expressed himself as feeling very well.

Dec. 12. Morning. Temperature 100°, pulse 73. Evening. Tempera-

ture 99.8°, pulse 75, wound looking much same as yesterday, dressed as before.

Dec. 13. Morning. Temperature 99.6°, pulse 75. Evening. Temperature 98.5°, pulse 70, patient seemingly doing well, some considerable bulging into opening made by trephine, slight discharge.

Dec. 14. Morning. Temperature 99.2°, pulse 80. Evening. Temperature 95.6°, pulse 82, hernia of brain more prominent, discharge quite considerable, some pain in head, not so cheerful.

Dec. 15. Morning. Temperature 100.2°, pulse 78. Evening. Temperature 102.2°, pulse 114, pain very severe in head, face flushed, very irritable and restless, hernia of brain size of walnut protruding and breaking down, wound discharging small quantity of thin pus.

Dec. 16. Morning. Temperature 102°, pulse 116, patient dull and aroused only with great difficulty, complete left hemiplegia again occurred.

Ophthalmoscopic examination made by Dr Park, as follows :

9:30 A. M. Right ptosis and paresis of the *Orbicularis Palpebrarum*. Right pupil moderately dilated and slightly larger than left. No strabismus apparent. Sensibility of right cornea somewhat diminished. Both optic discs present evidence of commencing papillitis, blurring of edges of discs and enlargement and tortuosity of retinal veins. Left disc-changes rather more pronounced than right.

Evening. Temperature 103.6°, pulse 150.

Patient died December 17, remaining conscious to almost the last.

An autopsy revealed a longitudinal fracture of internal table, extending from point of injury downward through the frontal bone to its articulation with the sphenoid, no depression, the dura was thickened, slightly congested, and separated from bone all along the line of fracture.

The anterior and middle lobes of right hemisphere were found to be one immense abscess-cavity the size of an orange, the pus extending down to the ventricles and back to fissure of Rolando. Left side normal.

## A CONTRIBUTION TO CEREBRAL SURGERY.

BY J. W. KIME, M. D., *Fort Dodge.*

At 6 P. M. July 14, 1890, Willie E., aged 9, was looking into a mud mill at a pottery, his head resting against a corner post of the mill, when the sweep to which the mule was attached, came round and, catching his head, severely crushed it against the post. At 8 P. M., examination showed a punctured wound about an inch above the right ear, large enough to admit a small probe, from which blood was oozing. Over the whole right side of the head and extending down onto the neck was a large hæmatoma. Behind and above the right ear, deep pressure failed to reveal the bony resist-

ance of the skull, being soft, pulpy, fluctuating, and showing marked pulsations,—no information obtained by probe.

Patient was entirely conscious, and had been so ever since injury; sits up, pupils respond to light, are equal in size, but at times quite rapidly dilate and contract. Has vomited once, pulse weak and irregular, shock moderate, a little drowsy, but easily aroused. During the night rested quite well under mild opiate.

July 15th, 7 A. M., pulse 104, full, strong, regular; temperature normal; conscious, complains of pain in right side of head, is very fretful and refuses to permit head to be touched. Oozing from wound has ceased. No symptoms of cerebral compression.

I decided, however, to make a free explorative incision at once, and continue the operation if found necessary.

With the assistance of Drs. H. G. Ristine, S. A. Kime and F. E. Seymore, at 11 A. M. patient was placed under chloroform, head shaved and cleansed, washed with bichloride solution and afterward with ether and alcohol. An incision was made behind and above the right ear, through which cerebral tissue and clotted blood escaped.

The incision was now extended from near the lower extremity of the mastoid process, upward to within an inch of the interparietal suture. A cross incision was then made, beginning an inch in front of the occipital protuberance, to near the anterior fontanelle, along the side of the head. The four corners were then turned back and about one-half ounce of brain tissue was scooped up from a depression in the skull, which measured four inches in length, three inches in breadth and about an inch in depth. The brain had squeezed out through the fissures in the skull, the fracture being compound, comminuted and depressed. The coronal suture was found separated one-sixth of an inch. This suture was followed, and the clots were removed with forceps as far as the anterior fontanelle. The finger passed its entire length under the scalp along the suture found it still separated, and it is believed that the frontal bone was entirely separated from the parietal bones. Further extension of the incision was not deemed advisable, however, as the boy was extremely depressed.

In order to elevate the depressed fragments, I found it necessary to remove two pieces of skull, which I did with much difficulty, owing to the proximity of the meningeal and cerebral arteries. This was done with forceps and Hays saw. The fragments were elevated principally by means of the fingers, the sharp points being removed by the rongeur. The membranes and brain thus left without the covering of the skull was about three square inches in area.

The parts were thoroughly cleansed with warm bichloride irrigation 1-5000—a small rubber drainage-tube was inserted through the membranes over which the dura was sutured with catgut. The periosteum and scalp



were united by silk sutures, drainage tubes being passed beneath, through which the irrigating solution was passed until it came out clear, when the wound was dusted freely with iodoform and dressed with aseptic dressings.

Patient's condition at end of operation was extremely critical, pulse almost imperceptible, and shock very great. Under stimulants hypodermically, hot enemata and heat externally applied, the patient rallied, and at 8 P. M. temperature was  $100\frac{1}{2}$ , pulse 120, quick and hard, delirium slight, had vomited three or four times. At 10 P. M. one-tenth gr. morphia was administered hypodermically, and 2 m. tinc. aconite ordered at 12 P. M.

Temperature fell to normal on the second day, where, with slight fluctuations, it remained throughout the subsequent history of the case.

Head was dressed on the third day. Bichloride irrigation was made through the drainage tubes. On the fifth day patient was taken up and dressed, and carried to the dining room without my knowledge, but with no apparent evil consequences.

The sutures were removed from the scalp on the seventh day, and the wound was found healed except a very small point at the lower angle. There was a slight purulent secretion at this point for a few days, when it also healed. On the ninth day the patient got out of bed and ran into the kitchen, and on the twenty-first day was on the streets at play. On the twenty-fourth day a small hernia cerebri, about the size of a pea, appeared just behind the center of the mastoid process, which soon disappeared under pressure of a pad of absorbent cotton.



On the thirty-seventh day the bandage was removed, a cap with a broad iron plate in the side fitted to his head, and patient discharged, cured.

REMARKS.—The patient was not at any time unconscious, and when picked up, told his father not to cry, because he was not much hurt. At no time while under treatment was he unable to converse intelligently, being slightly delirious only at times until his attention was secured.

There was no paralysis of motion or sensation. The recovery is apparently complete, the large amount of cerebral tissue lost not in any manner affecting any function of mind or body. Patient has long been in school and keeps up with his classes very readily.

Examination now shows that the skull removed is rapidly being replaced

by new bone formation; already fully one-half has been replaced, and I predict that another year will completely close the opening from which the pieces of skull (which I exhibit to you) were taken. You will observe on the inner surface of these pieces of skull the grooves for the meningeal arteries.

The hernia cerebri noted in this case followed the general rule, that cerebral hernia is more likely to occur through small fissures than through large openings, preferring a fissure through the mastoid to a large opening resembling a fontanelle in which cerebral pulsations could be readily seen.

This patient well illustrates the fact that no head injury is so severe as to be despaired of, while others equally demonstrate that none are so slight as to be despaired.

To cerebral localization this case is a negative contribution, demonstrating that the brain posterior to and above the right ear may be severely crushed and a large portion removed without any apparent effect upon the individual.

The exact location of the injury is shown in the accompanying photograph; the dotted circle showing the portion from which the skull was removed, though the greatest injury to the brain was about the intersection of the two incisions which is on and near the fronto-lambdoid line, and about  $1\frac{1}{2}$  inches posterior to the auditory meatus.

The middle portions of the first and second temporal lobes suffered most.

The skull removed uncovers the posterior portion of the frontal and anterior portions of the temporal lobe, the fissure of Sylvius and posterior cerebral artery.

It is not believed that the cerebellum suffered to any considerable degree.

The demand for operative interference in this case did not seem to be imperative; yet had a conservative course, so called, been adopted, the boy must have speedily died.

Considering the slight additional complication of converting a simple into a compound fracture of the skull, in all doubtful head injuries, the diagnosis should be made clear by freely incising at the site of the injury.

The boy has kindly consented to come here with me to-day, and I have the pleasure of presenting him to you for your personal examination.

#### DISCUSSION.

DR. J. W. SMITH: *Mr. President*,—I wish to say that the paper is a very interesting contribution on injuries of that kind, and illustrates the very well known principle that injuries of the brain not only are not dangerous so much according to the lesion as to whether there is free exit or not for the products of suppurating surfaces. In fact, I believe it is the exception to the rule, where the injury gives free discharge during the sup-

puration, that the case does not recover, unless it be an extensive brain lesion. That has been my observation and experience, while an injury with little or no opportunity for discharge is quite apt to prove fatal sooner or later, even under antiseptic precautions.

DR. C. E. RUTH: *Mr. President*,—The most interesting feature in regard to this, in my mind, is the fact that the wound is growing smaller; that is, the opening through the skull. I believe the doctor did not say that he put back any of this skull. It seems to me that the age of the patient is the only explanation that we can have of that, because if he were a little older, that injury certainly would not be repaired; that is, that gap made in the coronal bones could not have been repaired.

DR. ROBINSON: *Mr. President*,—Just in connection with the last gentleman's remarks I desire to say that I removed nearly the whole of the frontal bone of a man who was over 30 years of age, a few years ago, and it is nearly entirely filled up with bony deposit at the present time.

DR. BURBANK: *Mr. President*,—Since the discussion commenced on this subject I will say that I have seen several cases of trephining where the opening was entirely filled up with firm, resistant tissue, that felt hard. I am not quite sure that bony formation would take place.

DR. KIME: *Mr. President*,—One question I would like to ask in connection with this paper—a question concerning the laity and not the profession. Nearly every person among the laity asking me how we fixed that, says: "Did you put in a silver plate?" I would like to know how that idea got abroad. I would like to know if we have done such a thing. I cannot recall of ever having seen any history of any such practice, but the people seem to know that such a thing has been done.

DR. SILL: *Mr. President*,—That occurred a few years ago; a point of history, not medical. A surgeon had operated, removing a part of the cranium by trephining, and a gentleman present suggested that there should be something to hold the brain or it would protrude. He said: "Doctor, are you going to use a silver plate?" to which the doctor replied, "Yes," to pacify him.

DR. MAXWELL: *Mr. President*,—I think that originated away back in the time of Celsus, or, perhaps, anterior to that time. That was practiced anciently, I think, to introduce a plate, and it has been done, I think, up to modern times, occasionally.

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### A MALPRACTICE CASE.

H. E. W. BARNES, M. D., *Macksburg*.

To become the victim of a malpractice suit has been fortunately the lot of very few physicians, but the county in which I reside seems to have been in years past the banner county in the state of Iowa for suits of this char-

acter, and the findings of a jury against an excellent practitioner early in the history of these trials stimulated unscrupulous persons to attempt securing large remuneration for supposed damages that culminated and ended, so far, in my own case, six years ago. I shall endeavor, like the navigator who, sailing over an unfrequented route, striking a rock, will, when he escapes to shore by shipwreck or otherwise, see that it has its proper place on all the charts for other mariners; this much as an apology for inflicting you with this "o'er true tale."

August 27, 1883, in the morning, I was requested by Dr. John Porter, of Macksburg, Iowa, to visit a man about 55 years old, who lived three miles northeast of town. The doctor stated that a day or two previous to this time he had been called to see the patient and found him with an enormous scrotal hernia of some years standing, and that he had reduced it. The hernia was on the left side and ordinarily gave him no great trouble. After the reduction of the hernia, symptoms of obstruction of the bowels presented themselves. I found the patient, who was a very large man, past middle age, in bed, on his back, legs drawn up, pulse slightly accelerated, complaining of a severe and constant pain in the abdomen, more severe in the left inguinal region, that was aggravated by pressure. He also stated that he had been vomiting and retching at irregular intervals, and that nothing had passed from his bowels since he had been taken sick. We examined him carefully and retired. At the council the doctor detailed his treatment thus far in the case. He had administered several doses of castor oil and epsom salts, and repeatedly attempted to distend the rectum and colon with water and gas (by disengaging carbonic acid gas in the rectum), but had failed, as he believed, on account of some obstruction in the rectum or colon. As the patient was in a small, poorly ventilated room, and weather excessively warm, we decided to remove him to a larger one. To administer sulphate of morphine by hypodermic injection, to apply hot fomentations with spts. turpentine to the abdomen and to give the deodorized tr. opium in sufficient doses and at proper intervals, to relieve, if possible, the pain. We also gave the Ger. tr. bell. with a view of obtaining its full effects on the bowels. I gave at once  $\frac{1}{4}$  gr. morph. by hypodermic injection and we arranged to have our treatment carried out, hoping that by this course we might be able to overcome the obstruction. We returned to Macksburg and Dr. Porter visited the patient again in that evening. The 28th I saw him again with the doctor in the morning, found no material change in the symptoms, he had vomited repeatedly. No movement from the bowels, vomited matter dark in color, weaker, great restlessness. I injected a larger dose of sulphate of morphine, and we decided to continue the treatment as near as could be done, Dr. Porter visiting him in the evening. The doctor called for me the next morning (29th), informing me the patient had grown worse. I requested additional counsel. The doctor

agreed to this and desired Dr. Rawls to visit the patient, but the doctor not being at home, I again visited the case with Dr. Porter and found his symptoms had grown worse. No movement from the bowels, vomiting persistent. The doctor had suspended the tr. bell. and substituted carbolic acid in small and repeated doses to try and allay the vomiting. But it was rejected. The vomited matter was very dark and had an offensive odor. I injected sulphate of morphine and we agreed that unless a change occurred very soon, surgical interference would be the only hope. Dr. Porter visited him again in the evening. The morning of the 30th Drs. Rawls and Porter saw the patient together, and in the evening I saw him with Drs. Rawls and Porter and we found his situation alarming in the extreme, and he was rapidly sinking into collapse. He was apathetic, pulse rapid, feeble and easily compressed. No passage from the bowels of either gas or fæces, less pain, and a cold clammy sweat stood on his skin. We retired to decide upon a plan of action. That his life was in imminent peril was evident, and that immediate interference was the only proper course to pursue was to us equally clear. Dr. Porter stated that he had fully acquainted the patient with the danger of his situation and that while expressing himself anxious and willing to submit to any method looking to his relief, and while desiring us to do everything possible to relieve him yet he refused to be "cut into" or to submit to abdominal section.

The nature and seat of obstruction was to us unknown, but we agreed and all concurred in the opinion that it was total, and believed it to be located in or near the pelvic cavity. And after a mature and careful consideration of all the desperate circumstances surrounding the case, the only course that presented itself to us (excluding abdominal section) holding a shadow of hope, was to attempt a recto-abdominal examination under an anæsthetic, if his strength would permit. This examination was to be attempted for diagnostic purposes. And we hoped that by this examination, we might be able to overcome the obstruction. The facts that led us to make this decision were these :

1st. The request of the patient to exhaust all methods known to us excluding abdominal section.

2d. That Dr. Porter had been totally unable to distend the bowels with either water or gas, led us to believe that an obstruction existed in either the rectum or colon, that the sigmoid flexure might be involved or its neighboring structures.

3d. That the patient was in an imminently dangerous condition and would die in a very short time unless relieved.

Dr. Porter examined the hands of Dr. Rawls and myself and decided that I, having the smallest hand, should perform the operation. I washed my hands carefully in water carbolized, pared the nails of my right hand and thoroughly lubricated it with lard, and returned to the sick room. He

took the anesthetic badly but soon passed under its influence. With the patient on his back the thighs flexed and held by assistant the examination began by carefully introducing one finger at a time and gently and slowly stretching the sphincter muscles until they were very largely dilated. At a point about five inches from the anus I found a valve-like constriction that dilated by spreading my fingers, that were then in a cone shape; my hand and thumb then passed readily into the rectum up to the sigmoid flexure of the colon (or what I judged to be it), and I then felt what appeared to be the tensely distended folds of the small intestines, tightly pressing against the colon in this region. I informed Drs. Rawls and Porter of the situation and we agreed to try massage at that point. Dr. Rawls pressed his hand on the left iliac region; I rested my left hand on his, to direct the force, extent and amount of the pressure made; with my right hand in the shape of a cone resting under the distended intestines, I pressed Dr. Rawls' hand downward with a steady rotary motion. I then distinctly felt the enlargement disappear with a gurgling sound audible to Dr. Rawls and myself. We examined carefully and it failed to reappear. I then removed my hand and it was followed by a rush of air or gas from the anus. The time of the operation was from fifteen to twenty minutes. We remained until the patient came out from the effects of the anesthetic, when he expressed himself greatly relieved of the "steady drawing" pain he had constantly, when not under the effect of opium, and a general reaction occurred. Believing that we had overcome the obstruction we decided to administer castor oil and keep on the hot fomentations, and give tr. opium if needed. We all saw him the next morning and were informed that before midnight he had an enormous evacuation from the bowels, the first since previous to Dr. Porter's first visit, and the reaction had continued. I saw him no more, as Dr. Porter then took charge of the case, but learned that he became able to work on the farm that fall and winter.

In March, 1884, Dr. Porter requested Dr. Rawls and myself to examine him, as he was having some trouble in the rectum, and complained of difficulty in retaining his feces. We examined the patient, and found about the internal sphincter an oval ulcer not larger than the nail of a little finger of an ordinary sized hand. The discharge from this excoriated the skin surrounding the anus. We agreed upon a plan of treatment: to touch the ulcer with a strong solution of argenti nitrate, and to use astringent injections. To this he agreed, and Dr. Porter was to carry out the treatment. Shortly after this, Dr. Porter was taken violently ill, and died, and this man fell into the hands of physicians of the school of "our friends, the enemy," who impressed on his mind that he had been grievously dealt with; that any and all such practice was outside the pale of surgical procedure; and in October, 1884, I found myself forced into the role of a defendant of a suit for "\$5,000 and interest and costs, for willfully and maliciously rupturing

and paralyzing the sphincter ani of the said plaintiff," etc., etc. To defend such a case properly, on so short notice, being out of the question, it was continued until April, 1885. The statement you have heard was used by me to take the depositions in Philadelphia of the following surgeons: John H. Packard, Thomas G. Morton, John H. Brinton, Samuel W. Gross and D. Hayes Agnew. These gentlemen all sanctioned the procedure; some had witnessed the operation; others had introduced the entire hand into the rectum, and one (Morton) stated that "some years ago, in consultation with the late Dr. John Forsyth Meigs, of this city, I made a recto-abdominal examination, introducing my hand, fore-arm to the elbow joint within the bowel, in order to determine a supposed disease involving the right kidney. The operation proved entirely successful for what it was undertaken; the patient made an excellent recovery, with the exception that a weak, relaxed condition of the anus continued for a year or more, when subsequently it regained its normal condition." Prof. Dawson, of the Ohio Medical College, delivered a lecture on this subject before his class, published it, and sent it to me in time for the trial. Dr. Kersey, of Stuart (then a stranger), kindly placed his time at my disposal. All the members of the regular profession in the county stood manfully by me at the trial. Dr. W. F. Peck appeared as an expert (he having introduced his hand and arm to the elbow into the bowel, as detailed by Dr. Morton), and examined the man by order of the court. I was debarred the use of a battery, by the court, to demonstrate that the sphincter ani was not paralyzed, and was in a quandary as to the course to pursue to compel a man to contract his sphincter ani when "he would not." I acquainted Dr. Peck with the situation; he at once wrote

R. Aquæ ammon.

Ol. Olivæ, aa ʒi.

and his purpose flashed over me—for where is there a sphincter ani that will remain unmoved when introduced to a finger reeking with this solution?—and this ruptured, paralyzed sphincter, that was suffering from "total disability," and wanted a full pension with back pay, contracted, not feebly but firmly and vigorously, to the great chagrin of its possessor, and then and there the "bottom" fell out of the case legally, in the minds of all the medical gentlemen present, but not anatomically. The trial of this case occupied the attention of the court and jury twenty-one days. I was in the witness chair fifteen hours. Dr. Rawls was sick with rheumatism, and risked his life to be present, and by a relapse almost lost it. At the end of this time the attorney for the prosecution was taken ill, and the case was continued to the next term, and then dropped for want of prosecution. In this case the leading luminary of Hahneman in Iowa swore that an operation of this character had never been performed, to his knowledge, and I believe he told the truth. All who aided me in this case I wish to thank,

and truly hope that all physicians may be spared the financial loss and mental anguish that go hand in hand with an atrocious attack of this character.

Our system of medical jurisprudence is wofully defective. A board of surgeons should be appointed in each State, before whom any one having a grievance should appear, and the acts of the surgeon should by them be investigated, and they should have the power to remand a case for trial. This would be fair for all. But who now is safe? Under our present laws a physician may hope for the same measure of justice that is accorded a Russian suspected of nihilistic tendencies at St. Petersburg, or a white man captured by pigmies in the great Central African forest. For, given a jealous competitor, full of subtle intrigue; an ignorant, ungrateful and inhuman wretch for a patient, and a so-called attorney, who, sunk to the level of all other prostitutes, differs from them in this, that he lets his brain for hire, and you have a trio whose capabilities for mischief are unlimited.

"The tiny, trumpeting gnat can break our dream  
When sweetest, and the vermin voices here  
May buzz so loud—we scorn them, but they sting."

#### DISCUSSION.

DR. WAPLES: *Mr. President*,—I am not acquainted with the gentleman reading the paper, and my object in rising upon the floor is purely for the professional good. I do not think I have ever met him before. I think the paper presents matters of so important, of so wide and diversified a character as to entitle it to a discussion and not to be passed over in silence. It is not merely the recital of the case—it is the recital of a good case—but it is more than that; it is the recital of a danger to which all of us who have been practicing in the past fifteen, twenty or twenty-five years have been subjected over and over again. The legislature of Iowa has the ability and has shown its willingness to pass such legislation as is needed as indicated. in Iowa railroad, in Iowa corporation, and in Iowa insurance legislation; legislation that has attracted the attention of the best legal minds of the east, and I know of no reason why your society might not have the honor of the formation of a committee to take into consideration the suggestions expressed in that paper, with a view of getting such legislation as would protect the people from the doctors and the doctors from the people. This is not legislation for any class; this is a legislation to which we are entitled. In certain cases a railroad company may force its case into the U. S. court, where the plaintiff has to give bond for security for the costs, and I know of no reason why such provision is not feasible for the medical profession. I know that years before I commenced the practice of medicine, when I was in business, when I attached a man's goods I had to give bond for two or three times the amount of my claim to secure the party, and I do not see why doctors might not inaugurate such a thing, and in so doing this society



have the honor of devising the first medical legislation for the protection of its members.

DR. CLAPP: *Mr. President*,—I was fearful that Dr. Barnes' paper had been passed by. Nothing but my extreme modesty prevented me at the time from asking that we should hear him. The gentleman asked a question just now, and the answer could come from hundreds of you who are in this room, why doctors have not some protection against the wrongs that are urged against them and the damages that are sometimes assessed against them? The gentleman cited railroads, which have their protection, and insurance, which is protected and a legal enactment made for their benefit, and several others, and there he stopped; and the answer is simply this: Not for lack of justice, not for lack of cause, but for the simple reason that there is not cash behind it to stir our legislators up to the necessity of the protection of the doctor, and do their duty. There is the answer. We have tried and tried again in the state of Iowa to have some legislation as regards the practice of medicine, and we tried for years before we could obtain any satisfaction, and we now have only a very unsatisfactory law. The same thing was tried years ago, and finally succeeded, as regards the anatomical bill. In speaking of the doctor's case, I know very well, at the present time there have been many objections to passing the hand, or the arm up the rectum and through the ileo-cecal valve. I might say that I have passed my hand and arm to the elbow three times in three different cases. Two of them recovered; one of them died, but I have not the least idea that that had anything to do with the death, or the cause of it. The individual had a stricture—the one that died, syphilitic and ulceration, and probably would have succumbed any way very soon. In the other cases it was passed up to detect the presence of a supposed foreign body. In the other case there was an obstruction that was supposed at the time to be fecal impaction. Two cases recovered; one died.

DR. MARTIN: *Mr. President*,—In reference to this matter of legal protection I have a personal interest from some experience in malpractice, having beaten my opponent, however. The answer to Dr. Watson's question, it seems to me, was in an article from a Minnesota journal which I saw only the other day. It was from the pen of a physician who had just come out from a suit successfully by employing a very able lawyer, who was also a legislator from that state. A bill was introduced then and there in regard to malpractice by the medical society through its committee, and was voted down. This same lawyer, who had successfully defended the doctor, was the main opponent of the bill. When asked afterward why, he said: "It would lessen litigation. We do not want these laws, because they would lessen law-suits." As well say we must not have sanitary reform because it would lessen sickness. Suppose we should take that view as medical men, which is taken by the legal profession, or was

reported so, at least, in this case. The one is as unreasonable, unconscionable and unchristianlike as the other.

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## A CONTRIBUTION TO CRANIAL AND SPINAL SURGERY.

T. J. MAXWELL, M. D., *Keokuk.*

"Cranial and spinal surgery being still in a transition state, every contribution to its history is of particular interest as affording additional material by the collection of which definite conclusion may be attained." In order to attain that desired end each worker should contribute his mite. Failures are as often instructive as successes, though it is not as pleasant to report them. Enthusiasts in any new field of theory or practice are apt to spurn the *terra firma* of facts and soar away into the ethereal regions of imagination. But these are the pioneers that march in advance of the masses and conquer unexplored countries; they may go beyond the limits of the practical and useful; nevertheless they are necessary to conquer the conservative dragons that stand guard over the garden of Hesperides, jealous of and ready to destroy any who attempt to pluck the golden fruit.

We can best measure the distance traveled in the direction of cranial and spinal surgery by glancing briefly at the rules laid down to guide us in the treatment of diseases and injuries of the great cerebro-spinal centers by advanced teachers and operators of the present, and comparing them with those of thirty years ago.

We will take Horsley, of London, as an exponent of the present. As to *depressed fractures of the skull*, he urges in the most emphatic manner the necessity of trephining in *every* such case, whether or not accompanied by an external wound of the soft parts, or by immediate symptoms of gravity. He claims that especially in children, who are tolerant of external injuries of this kind, the fracture will almost certainly bring with it, not only epilepsy, but also mental defect, persistent loss of memory and general deterioration. Trephining and elevation of the bone to its normal position, with clearing the subdural space of blood and clots, should be the invariable practice in these cases.

How many cases of epilepsy are known to have originated in an injury to the skull of otherwise healthy children, such injuries being recent or remote, slight or severe? How many more whose causes remain occult may depend upon apparently slight depression and injuries, unknown, overlooked or disregarded by parents and physicians. We reported to this Society, at its session in Keokuk in 1889, a case of trephining in a young man for epileptoid and other cerebral symptoms, that aptly illustrates the remote effects of slight injuries to the cranial vault. In that case eighteen years elapsed before any morbid symptoms developed. It may be of inter-

est to this Society to know the ultimate result of that operation. I am glad to be able to report that the young man is in vigorous health without a single trace of disease.

Again, *lacerations of the brain*, not only of compound fracture, recent or of long standing, but also in simple laceration. Horsley advocates trephining, freely opening the dura, washing out clots, removing hopelessly bruised brain—the operation concluding by suture of the dura and replacement of the button of bone. He says that these measures may prevent or entirely relieve the remote and sometimes the immediate consequences of epileptic convulsions.

Ordinary cerebral hemorrhage, that is, from the lenticulo-striate artery, constituting simple apoplexy. In these cases ligature of the common carotid artery should be performed for the following reasons :

1. Present measures, for example, position, application of cold, bleeding, counter-irritation to the legs, etc., can in no wise be considered as in any way able to check the hemorrhage from the injured vessel. Most modern writers advise leaving the patient alone to "take his chance."

2. The remote consequences, namely, permanent hemiplegia, even if death itself does not ensue, vary directly with the number of fibres torn through by the hemorrhage ; it is, therefore, absolutely incumbent upon us to, under all circumstances, stop the bleeding if possible.

3. Aseptic ligature of the common carotid is a very simple procedure, and primary union can be insured in a few days ; the temporary paresis which has occasionally been noticed, Horsley says he has never seen, and the occurrence of permanent hemiplegia, cerebral softening, etc., is only to be met with, so far as he is aware, in cases of septic operations. The dread of and importance described to ligature of the carotid are, therefore, quite fictitious, and ought not to be allowed to stand in the way of the suggested procedure.

The writer saw a case this winter that is of interest in this connection. A young man was stabbed, the blade entering between the angle of the lower jaw and the mastoid process, wounding perhaps the external carotid or some of its branches. The resulting hemorrhage was profuse. Ligation of the common carotid was performed, and at the time he presented himself for treatment there was a fistulous opening at the site of ligation from which we extracted a ligature. There still remained some hemiplegic paresis on the left side—the side on which ligation was performed, together with some mental alienation and weakness. This case illustrates the exceptions to the rule of immunity from danger in ligation of the carotid.

We will now report a case coming under the head of *depressed fractures* of the skull. The case is that of a child eleven months old, born of healthy parents. The child healthy, well nourished, except paralysis of the left

hand and arm, together with slight ptosis of left eyelid. These conditions had existed from birth. The child was delivered by means of forceps, being quite large. There was a marked depression in the right parietal bone, a little behind the junction of the upper with middle third of the bi-auricular line. We concluded that the depression in the skull, being situated over the motor area of the hand and arm, was the efficient cause of the paralysis. The accommodation that is supposed to exist in infantile brains had not improved the paralysis of the arm. The parents were anxious to have something done to relieve their child, and readily consented to the proposed operation of trephining in order to relieve the pressure. On the 31st day of January last, after due preparation of the patient, viz., the head shaved, and thoroughly cleansed with soap and water, and a cap wet in a solution of bi-chloride enveloping the head for three hours before operation, strict antiseptic precautions observed as to the preparation of operator, assistant, instruments, etc., the head was surrounded by a rubber tube drawn tightly, and passing just above the brows, ears and external occipital protuberance. This was done as a precautionary measure, to prevent hemorrhage. A U-shaped incision was made, the opening of the U looking forward, embracing the site of depression. The incision penetrated to the pericranium, and included all the soft parts in the raised flap. Two buttons were removed, including the depressed bone. The trephine was one inch in diameter. The dura seemed healthy, the pulsation of the brain was quite distinct, there was no sense of induration imparted to the finger; it was, therefore, not disturbed. In order to verify the correctness of our diagnosis, and demonstrate the cerebral localization, we applied the two poles of a Faradic battery, turning on a weak current, to which the hand, fingers and arm responded by vigorous movements. The buttons, on being removed, were immediately immersed in a warm solution of bi-chloride, 1:1500. Each button was perforated in two places, through which was passed a loop of sterilized catgut, armed at each end with a needle, by means of which they were fastened to the flap, by passing each needle through it and tying on the external surface, so that when the flap was replaced the buttons fitted into the places from which they were removed. The wound was thoroughly cleansed with the bi-chloride solution; the flap secured in its place by a continuous catgut suture. A few strands of gut were introduced to serve as drainage. The line of suture was liberally sprinkled with iodoform, and a dressing of antiseptic gauze and wool applied. The dressings were removed in thirty-six hours, and drainage tube removed, redressed, and not disturbed for one week. The child sustained but little shock, and made an uninterrupted recovery without rise of temperature. The sutures were absorbed at the end of a week, the dry, external parts being easily brushed away. At the end of two weeks the parents returned to their home, with a faint line marking the line of incision, and the cranial vault complete. The but-

tons apparently united firmly. The next day after the operation, there was a marked difference in the appearance of the left hand and arm. Instead of being puffy and boggy, as well as cold and clammy—the condition before operation—the swelling had disappeared, and the hand and arm were warm and natural. There has been a steady improvement since the operation, the child being able to use fingers, hand and arm. It was not expected that there would be a sudden, complete restoration of function. As the motor area had never been subject to the will, it per force must be educated and strengthened by use and effort. We therefore directed the parents to tie up the right arm and compel the child to use the left.

With the report of this case we pass from the consideration of cranial operations to those of the spinal column. Again we quote from Horsley, as a representative exponent of advanced thought and teaching. We report the following case, in order to emphasize two points. (1.) "In fractures of the spine, operation without delay should be resorted to in all cases where displacement or crepitus indicates compression, and where extension directly after the injury clearly fails to reduce the deformity." (2.) That the operation in itself is not dangerous, if performed with due regard to sepsis.

*Case.*—Man, about 35 years of age, married, coal miner by occupation, while engaged at his work last July (1890), was caught by a falling ledge of slate, which resulted in fracture and dislocation of the spine. The injury involved the arches of the first and second lumbar vertebræ, dislocating the lower portion of the spine, one and one-half inches to the left, between the first and second vertebræ.

The result of injury was immediate paralysis, motor and sensory of the lower extremities, bladder and rectum. There were no measures taken to replace or adjust the dislocated and fractured vertebræ. The case was sent to the St. Joseph Hospital and put under my care for treatment in December, 1890, about five months after injury. There still remained paralysis motor and sensory of all the parts below dislocation. Urine and alvine evacuations passed unconsciously. Bed sores had formed on sacrum, and crests of the ilia.

I operated on the spine, with the hope of relieving the pressure on the cord. As stated, the dislocation was between the first and second lumbar vertebræ, the lower portion being dislocated one and one-half inches to the left. I made an incision of about six inches in length over the spinous processes, separating the soft parts down to the laminæ; found fracture of first and second lumbar vertebræ, site of fracture was at junction of lamina with pedicles, through base of transverse and articular processes. By means of a Hays saw and bone-forceps, cut through the arches of the two affected vertebræ at the site of the repaired fractures. There was a con-

siderable thickening of connective-cellular and periosteal tissue together with callus, the result of reparative inflammation.

The cord was pinched between the dislocated vertebræ and bent at right angles. I removed the bone and other tissue at the salient angles so as to lessen the angle of flexion and relieve the pressure. The wound was dressed with drainage tube and healed without pus-formation. There was marked improvement manifested immediately after operation, sensation returned to limbs so that the hand passing gently over the surface of legs and feet could be felt by patient; the motor power was not affected. This improvement lasted about twenty-four hours and then relapsed to nearly the same condition of insensitiveness, but the limbs grew warmer and the bed-sores healed. Again sensation revived under diligent application of massage, filling the patient and attendants with hope of, at least, partial restoration. There was no perceptible improvement in bladder or bowel at any time, as the dejecta and urine continued to pass unconsciously. The condition of the patient at this time remains about the same, so far as paralysis is concerned, as before the operation, though the general health is very much improved. There is general atrophy and contracture of the muscles of the legs and thighs, which probably have undergone fatty or fibrous degeneration. I have not been able to get any response to the Faradic current at any time, although strong currents have been passed.

This case should have been treated by first making efforts to replace the fractured and dislocated vertebræ, and relieve the cord-pressure. That failing, trephining or removal of the arch-might, and probably would have relieved the case.

Extension failed in our hands, because nature had fixed the dislocated parts in mal-position by efforts at repair.

#### DISCUSSION.

DR. C. E. RUTH (Muscatine): *Mr. President*,—At the request of Dr. Maxwell, I prepared some notes on gun-shot wounds in the head, as he had not the time to prepare the notes; and as he has used up his time, with his consent I will now read them.

The consent of the Society having been obtained, Dr. Ruth read

#### "GUN-SHOT WOUND TRAVERSING BRAIN,"

as follows:

March 3, 1891, at 9 P. M., A. E. Carpenter, of Columbus Junction, Iowa, was accidentally shot with a 32-calibre pistol at short range, and was brought to me at Muscatine at noon of the 4th by Dr. F. L. Darrow. The wound of entrance was at point of junction of external angular process of frontal bone with the malar, or slightly below. The position of the weapon and the patient at the time of the shooting, together with the course of the

ball until it had entered the cavity of the cranium, would indicate that the ball would reach the parietal eminence on the opposite side of the head. Patient was conscious when I first saw him and complained of pain in right eye and head. The pain in the head was not definitely located. Temperature 99°, pulse 72, respiration 20. Pulse was somewhat irregular. Chloroform was administered and external wound enlarged, and ball found to have entered the cranial cavity. A sharp hemorrhage followed, and considerable cerebral tissue was washed from the wound by the flow of blood. No loose bone being found, the wound was packed with absorbent cotton and dressed with absorbent cotton and iodoform. Pulse was regular, and always remained so after the first operation. Small amount of morphine was administered for first four days, but afterward, none. Answered questions correctly. Slept well and ate fairly. Motion, coördination and sensation perfect. Perfect control of rectum and bladder. Fourth day suppuration began. Eats and sleeps well. Temperature and pulse normal, and continued so to 13th inst., when pulse came down to 60. Temperature still 98½, respiration 20, and so continued until the 17th. On the 13th, not being satisfied that the drainage was sufficiently free, I introduced a tube four inches in length and size of No. 8 catheter. I found I could not follow the course I supposed the bullet had taken, but after entering the cavity of the cranium, the ball had been deflected in its course so as to pass more directly backward, at an angle of probably 30 degrees, to its original course.

Meeting slight resistance at a depth of four inches, the tube was cut off. Continued to eat well until the 21st. From the 10th to the 20th several small pieces of bone became loose in the track of the tube and were removed; also small piece of lead, which Dr. Little found while caring for the patient during my absence.

From the 17th the pulse and temperature began slowly to rise, and by the 22d had reached—pulse 90, temperature 102°. Lengthened tube to six and one-half inches on the 19th, and on the 22d passed one through the brain until it struck the skull on the opposite side of the head, at which point I was satisfied there existed an abscess, and in it the ball. Becomes faint on rising and vomited. On the 23d, quite comatose. At 1:30 P. M., 23d, under an anæsthetic, I passed a director, consisting of an oval-tipped gum catheter, containing two strong styles to keep it perfectly straight in its course, through the brain until I encountered resistance of the skull on the opposite side of the head. Then I sighted the course of the director; after shaving the occiput, raised a flap of the scalp and removed a disk of bone with the trephine one and one-half inches above and one inch to the right of the occipital protuberance. The disk was removed from point of junction of occipital and parietal bones, and probably two ounces of pus was immediately discharged. On the inner side of the disk was the mark of the impact of the bullet.

The director being just beneath, the dura was incised and the director passed through the trephine hole, followed by drainage tube, which passed entirely through the head and traversed the right, middle and posterior lobes of the cerebral. The pus cavity had formed around the ball, leaving it free in the pus cavity and preventing its being found at the time of the operation, but it was discharged in a few days from the trephine hole. The pus cavity occupied the right posterior lobe of the cerebrum. Death occurred from exhaustion on April 2, nine days after the operation, or thirty days after receiving the injury. The tube was irrigated twice daily with sterilized water, and the tube changed every forty-eight hours. Temperature ranged from 100° to 102°, pulse 110 to 150, and respirations from 26 to 36 after the operation. Rational until last forty-eight hours when awake. Appetite good, except three days before and five days after the last operation. Right pupil sluggish to light; left, normal most of the time. No vesical or rectal incontinence until last four days. What would have been the result had the track of the ball been followed and the ball removed before the abscess developed, or could it have been done? In Wyeth's Surgery, page 387, is the only other case to my knowledge on record of a ball being located after traversing the brain. In that case the patient recovered, because the operation was done, the ball removed, and drainage established before the secondary effects could occur of suppuration etc.

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### SPINA BIFIDA.

C. LEONARD WHITMIRE, M. D., *Waverly.*

Not long since I was summoned several miles into the country to see a newly-born child, said to be "bleeding to death." The case proved to be interesting from three points of view.

*First.* The character of the case itself.

*Second.* The tendency of the ruptured spina bifida to heal under treatment.

*Third.* My first personal experience with a Christian scientist.

I found a small child, scarcely three hours old, weighing perhaps six pounds, swaddled in blankets, and lying in a cradle close to the mother, while an ignorant and superstitious woman stood over it, mopping away at a bleeding vessel with an old rag. She would also make wild and mysterious passes in the air, all the while muttering some unintelligible jargon to herself, all of which, *I afterward learned*, was supposed to have some combined supernatural power in checking the flow of blood. I immediately showed her how to compress it to check the hemorrhage, while I inquired as to the afterbirth of the mother. Learning that it had not come away, I made the usual examination, removed it, soon had the uterus contracted well down, and then turned to the child. The bleeding vessel was found in



the edge of a recent rent or tear of a superfluous fold of skin situated directly over the lower lumbar vertebræ, sacrum, and coccyx. On lifting this fold into the light with my fingers, so as to better examine it, the little artery began to spurt quite freely, whereupon I ligated it with a small silk thread, including in the ligature some adjacent tissue. This superfluous skin was found to be the walls of what had once been a spina bifida. It had existed intact in utero, but had ruptured during parturition, giving exit to its contents, and tearing the artery which had caused the chief alarm awhile before.

The base of the tumor extended from the upper border of the second lumbar vertebra to the very tip of the coccyx, including, between these extremes, the sacrum. Transversely it embraced three or three and one-half inches on each side of the spinal column. In the condition when seen, the fold of epidermis was twelve and one-half inches long, by actual measurement, so that when in globular shape—which was that of the original tumor—the statement that it was considerably larger than a very large Osage orange would clearly be within the truth. At the most extended part, or that portion furthest removed from its attachment to the body, was the line of rupture before mentioned, running parallel with the axis of the trunk. It was about two inches in length, and included in its lower edge the small artery spoken of above. The walls of the tumor were composed of the normal epidermis and a thin layer of cellular and alveolar tissue underneath, except where the rupture had occurred. Here it was membranous in character, and when the strains of labor came on, it was here the wall was broken. The skin covering the tumor was normal in color, thick and tough in consistence, and in appearance leathery. Inside the walls there were several cavities over the region of the spinal column, one of which was large enough to lay the second phalanx of the right index finger completely within. The existence of these depressions indicated there were a number of ill-developed vertebræ. Yet notwithstanding this fact no distinct channel could be detected leading into the spinal canal; still, such channels may have existed as minute tubes impossible to discover except at an autopsy, when the danger of exciting meningeal inflammation by probing is past. Close to the largest cavity, at the upper part, a small, smooth, shining piece of membrane could be seen, resembling true serous membrane, and it is possible that this was connected with the membranes of the cord through some imperceptible yet just as certainly existing channel, close at hand.

As to the *prognosis*, the parents were naturally anxious to know. Here was a weak baby, three hours old, with an imperfectly developed spine, and a spina bifida ruptured during delivery—a severe open wound in a delicate child—a loss of perhaps some of the fluids, either of the central canal or of the subarachnoid space; an exposure of the internal lining of the tumor to the irritating influence of the air; probably an exposure of the

mébranes enveloping the cord, or of the cord itself. The dangers of inflammation were therefore great, and the prognosis was consequently pronounced bad, and no hope of recovery given.

The indication for *treatment* was simple and clear. There was practically but one line to pursue: cleanse the parts thoroughly, adjust as accurately as possible, and await results; using meanwhile such local measures as would assist in antagonizing any inflammatory condition which might develop. In addition to this I thought it best to scrape away as much of the serous membrane as I could without injury to the parts, to facilitate the outspringing of granulations. Then I cleansed the inside with a solution of glycerine and carbolic acid. The glycerine was used for the double purpose of antiseptis and making the solution less diffusible—thus rendering it less liable to enter the spinal canal through any opening that might exist. I then cut out several pieces of cardboard of proper size, with a circular hole in each, placed them together and padded the whole with absorbent cotton. After adjusting it accurately and drawing the superabundant skin through the opening made in the center of the pasteboard, I bandaged it down sufficiently firmly to maintain a uniform pressure.

Minute granulations sprang up gradually, and the healing process commenced in a number of places. The character of the granulations was healthy and the superfluous skin contracted and adjusted itself accurately under pressure. As the child showed no more unfavorable signs, I almost began to believe that the parts would eventually become healed, but on the fourth day it began to exhibit unmistakable symptoms of meningeal inflammation, and I allowed myself to indulge no more false hopes. It lived four days longer. Notwithstanding the fact that death occurred as had been predicted, I had the satisfaction of seeing an extensive inner surface of a ruptured spina bifida almost entirely heal, which, in my opinion, is an unusual and fortunate result.

#### DISCUSSION.

DR. H. D. ENSIGN: *Mr. President*,—I would like to ask a question of this society. Members of this Society will remember some years ago a number of cases were reported in the journals relative to this trouble, where they had been cured, by operation, or otherwise. It has either been my fortune, or misfortune, to have some cases of this kind; something like the doctor, when it first occurred, I used the elastic ligature; had the same repeated, and treated it for five days. The baby seemed to do well; came to me from the hands of a midwife, seemed to prosper and the parents seemed to think it was going to live. Just as the healing process began, just as the ligature was closed, almost enough to close the opening, the child died. I have another case that comes to me by rumor, in our neighborhood, in which the physician performed an operation, removing some pieces of

bone—so I am told, on what I consider good authority,—closed the opening in the spine; but within twenty-four hours the child was dead. And I ask this Society this question: If any member has ever seen a case cured? I am very incredulous in regard to the reports that have been circulated in our journals, not having seen or been able to find one where I considered the information was reliable.

DR. J. W. SMITH: *Mr. President*,—I have met with a number of such cases and they all died. Some of them lived a few days, weeks and months, and I did sometimes indulge the idea that they might be cured, but for a considerable number of later years I have no doubt but they are bound to die, and if you will tell your friends so you will save your credit.

MISS BROWNSWORTH, M. D.: *Mr. President*,—I have seen several cases; some had been operated upon and some had not; those operated upon were treated by injections of the tincture of iodine and they died, and one not operated upon lived to be three months old.

DR. CROUSE: *Mr. President*,—I have seen one patient that lived to be 35 years old with Spina Bifida; living after five years with paralysis of the lower extremities and died from rupture of the sac at the age of 35. The sac held two or three quarts of arachnoid fluid.

DR. C. F. DARNALL: *Mr. President*, I have seen a child several years old that has Spina Bifida, and goes to school, climbs trees and everything; it does not seem to bother it at all.

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### A CASE OF ORBITAL TUMOR.

J. M. BALL, JR., M. D., *Waterloo*.

Nick Diesburg, of Gilbertsville, Iowa, a German boy, aged 15, was brought to me in the fall of 1888. My first record of this case dates from March 21, 1889. At that time there was exophthalmos on the left side, which had been gradually growing for a year past. The patient had experienced no pain, either in the eye-ball or around the orbit. Occasionally he had complained of diplopia. Inspection showed nothing but the exophthalmos, the eye being otherwise normal in appearance. The protrusion was directly forward and outward. Motion was not impaired to any great degree and the eye could be readily turned in all directions. Digital examination of the orbit revealed nothing. There was no pulsation and no *bruit*. Vision in the affected eye—20-80. The other eye was normal. The ophthalmoscopic examination showed a "choked disk." The diagnosis of intra-orbital tumor was neutured.

The case then passed from my notice for a long time. Last month the boy was again brought to me. The exophthalmos had markedly increased. The external deviation of the eye was also greater. Motion was only slightly impaired. There was no pain, pulsation or *bruit*. The finger

pressed far back into the orbit, came upon an indistinct hard mass. Vision—20-100. Ophthalmoscope showed gray atrophy. I felt justified in saying that the growth was situated in or upon the optic nerve, and advised an operation for its removal.

The operation was undertaken on April 5th, one week ago yesterday. Drs. Chase and Graham, of this city, kindly assisted me. An incision was made through the conjunctiva, at the inner side of the globe. The internal rectus was lifted up on a strabismus hook, De Wecker's sliding hook was passed under it as in the operation for advancement; the muscle was then severed and a thread passed through it for future use. My finger was then inserted between the muscle and the ball for the purpose of exploring the orbit. The operation was begun in this careful manner, for the reason that I had hoped to be able to remove the growth without sacrificing the ball, as has been successfully done by Strawbridge, Knapp, Gruening and Schiess; but when my finger came in contact with a hard mass which filled the greater part of the orbital cavity, I recognized the impossibility of saving the eye ball. I rapidly severed the remaining muscles and then began to pass my index finger around the growth so as to separate the adhesions. These had been largely broken up, and I was congratulating myself upon my good fortune, when suddenly things were brought to a stand-still. The boy got blue in the face, respiration stopped, the jaws were set like a vice, and the pulse was not to be felt at the wrist. There was a condition of profound shock due to chloroform poisoning. For about five minutes we did not know whether we had a live patient or a dead subject. The boy was immediately inverted, the jaws were pried open, the tongue pulled out, artificial respiration commenced and hypodermics of whisky given. At last he concluded to resume breathing. It was several hours before he was at par. Meanwhile the eye-ball was snipped off, while the operation, so far as the tumor was concerned, was postponed. I hope in a few weeks to be able to remove the growth under ether.

#### DISCUSSION.

DR. HOBBY: *Mr. President*,—Tumors of the orbit occur with sufficient frequency to make the subject interesting to the pathologist. Fortunately, however, not so frequently as to bring them often before the surgeon. I have removed an intra-orbital tumor, requiring the removal of the globe, I think, in every instance, in eight cases. The interesting question in the case reported by Dr. Ball would be: Was it a growth having its origin from the walls of the organ, and hence probably sarcomatous, or from the globe directly itself? It seems to me the important question in such case as this can only be solved after the tumor is in the hand of the operator. The ultimate prognosis in all these cases of orbital growth in which the original tumor is from the globe itself, or from the optic nerve, is very grave.

## REPORT ON MATERIA MEDICA AND THERAPEUTICS.

S. W. MOOREHEAD, M. D., *Keokuk.*

In taking a retrospective view of the field of therapeutics during the past year it is not my purpose to detail in full the progress that has been made in this department of medicine, but simply to call attention to certain advances that are believed to be especially worthy the attention of the Society. Progress in therapeutics, if proportionate to the number of new remedies annually showered upon us by chemists and pharmacologists, would indeed be rapid and brilliant. Real and permanent advance, however, is to be found along the line of a wider and more perfect knowledge of the physiological action, and consequently proper therapeutic use, of our remedial agents, rather than in a multiplicity of new drugs of complex constitution whose purity is questionable and whose properties are comparatively unknown. The growing recognition of this fact, and the increasing interest in the study of the physiological methods in therapeutics, are alike noteworthy and commendable. As our knowledge of the action of remedies becomes more exact, we learn their limitations as well as their capabilities; in other words, we know when to withhold them as well as when to exhibit them. Consequently the tendency is toward a more restricted use of medicines than formerly, but such as are prescribed are given with a confidence born of knowledge which is in marked contrast with the therapeutic nihilism which prevailed a few years ago.

The year that has elapsed since the last meeting of this Society will ever be memorable for the announcement of Koch's method of treatment of tuberculosis. From what has been published concerning its mode of preparation it has been regarded generally as a glycerine extract of the tubercle bacilli, but it is, to be exact, a solution of the ptomaines formed as a result of their action. In appearance it is a brownish, transparent liquid which does not require special care to prevent its decomposition. Diluted solutions, however, soon become unfit for use because of the development of bacterial growths in them. The site preferred for its injection is the skin of the back between the shoulder-blades and the lumbar region. The smallest quantity of the remedy which will affect a healthy human being is about 14-100 of a minim, or 1 C. C. of the one-hundredth dilution. This amount in most people causes slight pains in the limbs, and transient fatigue. A few have shown a rise of temperature to about 100.4°. The same holds good with regard to patients suffering from diseases other than tuberculosis; but the case is very different when the disease is tuberculosis, when such a dose, injected subcutaneously causes those severe general symptoms of reaction so tediously familiar to all of you from their description in the pages of every medical journal. The more advanced the stage of the disease, the more severe is the reaction. The actual mechanism of its action can best

be studied in lupus, for there the battle is fought right upon the surface. In precisely what way the remedy produces its curative effects, cannot as yet be stated with certainty, but there seems little doubt that Prof. Koch has opened a new path in therapeutics, and we are apparently on the eve of a new era in the treatment of microbic diseases. Taking their cue from his investigations on the tubercle bacillus, two of his pupils—Dr. Behring and Dr. Kitasato, of the Hygienic Institute, of Berlin, have experimented on animals for diphtheria, and tetanus from wounds, and have publicly announced that they have succeeded both in effecting cures and in securing immunity against subsequent infection. The poison of the diphtheria bacillus has been isolated by Brieger, as a whitish, albuminous mass, soluble in water, and termed toxalbumin. Hypodermic injections of this poison in animals are said to produce symptoms of diphtheria, at intervals proportioned to the strength of the dose, although it is perfectly free from bacilli. The diphtheria bacillus does not penetrate beyond the mucous membrane of the throat and mouth, but the poison it generates circulates in the blood.

After considerable experimentation Behring succeeded in fortifying guinea-pigs and rabbits against diphtheria by five different methods, the best being the injection of super-oxidized hydrogen. The animals thus treated, it is claimed, evidenced a more or less pronounced degree of immunity, some of them being quite proof against a dose which, with unfortified rabbits, would have proven fatal in twenty-four hours. When the remedy was injected into an animal already infected with the disease it only hastened its death. As remedies against diphtheria produced by bacillus cultures, Behring tried some thirty chemicals, and achieved the best results with trichloride of iodine. This is asserted to have secured perfect immunity to guinea-pigs in all those cases in which it was introduced within six hours after infection. The survivors remained long sick, but after complete recovery, further experiment is said to have demonstrated that they now enjoy perfect immunity from diphtheria, being unaffected by inoculations of diphtheria bacilli cultures which proved fatal in thirty-six hours with guinea-pigs which had not been subjected to this treatment. This iodine-chloride is, unfortunately, so powerfully corrosive that it is not suitable for employment on man, but it has been suggested that immunity might possibly be communicated to man by transfusion of the fortified blood. Behring's experiments would seem to indicate that the destruction of the disease germ in diphtheria is not essential, provided we can neutralize its waste products.

Aside from what has been stated, most of the work of the past year, as in the previous two years, has been spent upon antiseptics, antipyretics, analyses, and hypnotics. The research has been mainly for chemical substances endowed with properties analogous to those of preparations we already possess, but which do not present the unpleasant effects which

accompany or follow the use of the latter. As a result of investigations undertaken to secure a substitute for iodoform we have *aristol*, from a Greek word, meaning better. *Aristol* is an amorphous powder, of a reddish brown color, containing 45.3 per cent of iodine, inodorous, insoluble in cold water and glycerine, and sparingly soluble in alcohol. It dissolves readily in ether, chloroform and benzine, and decomposes in water having a temperature of 140° Fahrenheit. It dissolves in the fixed oils and in liquid vaseline, but heat should not be used in making the solutions. It is not therefore a strictly stable compound, and indeed owes its therapeutic properties to the slow elimination of iodine, which is set at liberty under the influence of light and heat. *Aristol* is not toxic, and no unpleasant phenomena have developed after its application as a surgical dressing. Applications of it are not painful or irritating, and it is said to prevent the development of mycoderms and the microbes of suppuration, even when employed in small quantities. Its cicatrizing properties are much superior to those of iodoform, iodol and sozoiodol, and it is in every respect an excellent substitute for all of the iodinated preparations hitherto employed. From all reports it would appear that in *aristol* we have added a veritable arm to our therapeutic arsenal.

"Pyoktanin," literally "to kill pus," is the name of a new drug introduced within the past year. It is not a definite substance, but is a mixture of different compounds which are collectively known as methyl-violet. Several aniline compounds are known to exercise considerable bactericidal properties on gelatine cultures, and it is claimed that these compounds exceed corrosive sublimate in its action in this direction, while they are non-poisonous, odorless, and promote the healing of wounds to which they are applied. On the other hand, some aniline colors have no action upon microbes. As pyoktanin is not always of the same constitution, satisfactory therapeutical observations cannot be made.

Creolin seems to be gaining ground as an antiseptic and disinfectant, notwithstanding it has given occasion to several cases of poisoning. According to a recent analysis, it consists of four groups of compounds: (1) soaps, (2) creolin oil, (3) phenol, (4) pyridines.

Bromalid is a new drug made by combining bromine with acetanilid. The advantage claimed for it over the latter is that it is more distinctly sedative. As yet it has only a restricted use.

Salipyrin, a combination of 57.7 parts of salicylic acid and 42.3 parts of antipyrin, has been tested, but results do not show that it has any advantage over antipyrin.

Exalgin belongs to the same group chemically and therapeutically as antifebrin and phenacetin, but is less valuable than its congeners, because in full doses it is more apt to produce untoward symptoms. Dangerous and distressing symptoms have resulted from the ingestion of three grains.

In the line of hypnotics, chloralamid has shown itself to be useful, but cannot always be relied upon. Sulphonal, properly administered, is rising in professional esteem. Hypnal—made by combining antipyrin with chloral—is a new candidate for favor. It partakes of the properties of both its constituents. Methyl-phenacetine, a compound chemically analogous to exalgin, is said to be an active narcotic. Ichthyol is recommended in anomalies of the circulation with dilatation of the bloodvessels. Still other drugs have been introduced within the year, but as in the case of some of those already enumerated, the claims made for them must be substantiated by wide experience before they will be entitled to a place in our professional armamentarium.

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## EDITORIAL.

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### FAIR PLAY FOR THE GERMS.

THERE is an old saying, with a large percentage of truth dissolved in it, that "the devil is not as black as he is painted." Of course we can hardly even recall it now without a half-suppressed smile at the childish conceptions of our forefathers, and a mental agreement with that pioneer agnostic, Betsey Prig, that "there ain't no such a pusson." But it would not be very wide of the mark to declare that germs are coming to play much the same role in modern pathology that his satanic majesty did in mediæval theology. They satisfy our deep-rooted longing to blame somebody or something else for anything disagreeable that happens to us. In earliest days we attributed disease to the special malignity of evil spirits or "general cussedness" of frisky little demons; later it was the judgment of an offended Deity; now it's either heredity or germs. Anything but ourselves. Nor is the resemblance wholly a fanciful one between the germ-theory and the primeval conception of disease as a distinct entity, to be exorcised and ultimately exterminated, instead of as one of the shadows in the broad landscape of life, absolutely essential to its beauty, and shading off on every side into the brighter tints. Disease-processes are but health-processes perverted, and neither germ nor demon is necessary to account for them. And yet practically the whole medical world has resolved itself into a court of heresy, for the purpose of testing, and if possible prov-



ing, the guilt of a hitherto highly respectable and inoffensive family of tiny creatures. They have hitherto been denied either a hearing or counsel, but I now propose that they shall have both, such as they are.

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OF what are the prisoners at the bar accused? The most concise answer would be, "of everything," for they are declared responsible for almost every evil to which the flesh is heir, except corns, and colds in the head, and they're strongly suspected of being concerned in the latter by no less an authority than Austin Flint, Jr. With most of these charges, a large mass of evidence tending to implicate them is presented, but wherever this is lacking, as it is in several very prominent instances, a loud demand is calmly made for its "discovery;" the assumption being that they're guilty, of course, only none of our microscope-detectives have been sharp enough to catch them in the act as yet. In many cases again the evidence has been secured by the simple process of arresting the first germ they could find in the neighborhood of the disturbance, and declaring him responsible, like a tramp in a case of barn-burning, or a Celestial in California, where, it is said, whenever a crime is committed the authorities exclaim, "*Fiat justitia ruat cælum*"—and hang a Chinaman.

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OUR first objection is that the indictment includes too much, which is more than sustained already by the rapid and radical change of front made by the prosecution. In the beginning of the case every germ was harmful and must be destroyed, and a crusade for their extermination was enthusiastically entered upon, until as it was little by little discovered that every region and nook of the body—mouth, stomach, hair, skin—was fairly swarming with them, it gradually dawned upon them that any such much-to-be-desired consummation would have to be attended by one slight incidental drawback—the extinction of the human species.

This of course necessitated a change of base, and the case against nine-tenths of my clients was quietly dropped, but this was covered up by urging it against the remaining minority with redoubled clamor. They were declared the "criminal

class"—a class which has no genetic existence anywhere except in the brains of economic theorists—of an otherwise harmless and indeed beneficent race of organisms, the scavengers and sanitary police of the universe, and war to the knife proclaimed against them wherever found.

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BUT even against these ill-disposed individuals, the evidence is almost purely circumstantial; they are found in the diseased parts *after* or *during* the disturbance—almost never *before*,—if they were they would be quietly dubbed "non-pathogenic," let go, and another scapegrace hunted up,—captured with portions of the victims' tissues in their possession, discovered in the air, soil, or drinking-water, during an epidemic. It is true they are seldom present in the earliest stages of the process, or, if so, in very small numbers; but this only proves their diabolical cunning and the intensity of their malignity; they're just working in the dark until strong enough to defy attack.

These statements are backed by an enormous bulk of testimony; indeed we frankly admit their truth, but they no more prove that my clients are the cause of the disturbance than that a turkey-buzzard is responsible for the death of the carrion he's found devouring.

The only shred of direct, positive evidence is that from inoculation experiments, and here we propose to make our strongest fight, on the following grounds:

It is highly questionable whether the disease inoculated is identical with the original, human one.

In most cases the animals inoculated are really already in a pathological state, either from constitutional feebleness, or over-confinement and starvation.

In many cases *other products* of the disease are injected at the same time.

[To be continued.]

ALL our colleges report an encouraging prospect for the coming year. The medical department of the State University was opened by an able and interesting address by Prof. Guthrie, at Dubuque, Sept. 16, with an enrollment of nearly 100 new students on that day. Keokuk Medical inaugurated its second session with a scholarly lecture by Prof. Marshall, while the College of Physicians and Surgeons at Des Moines does not begin its session until Oct. 6, but reports an enrollment of twenty-five students already.

## DEPARTMENT OF DISEASES OF ANIMALS.

S. STEWART, M. D., D. V. M., EDITOR.

(Secretary Iowa State Veterinary Society.)

## PUBLIC HYGIENE.

In August, 1890, the government of Italy promulgated model laws for the sanitary control of the people's meat and milk supply. We are not accustomed to look upon Italy as a leader in modern civilization, and it is with due appreciation that we acknowledge the example she has set for us. Provisions for engendering a high standard of public health are evidence of advanced civilization. Concerning the meat supply, the laws provide for :

1. The compulsory examination of all butcher animals.
2. The erection of public slaughtering-houses in all cities of over six thousand inhabitants.
3. The conferring upon veterinarians the direction and supervision of these slaughter-houses.
4. The sale of poor quality, but not unhealthy meat, apart from the prime sorts.
5. Strict rules for the inspection of imported meats.

The danger from the use of unwholesome milk is probably much greater than that from diseased meat, and the law provides for : 1. The licensing of every dairy. 2. The examination of every cow before she is allowed to enter the dairy. 3. The compulsory reporting of each case of sickness among the cows of the dairies. 4. The regulation of the sale of the milk from sick cows. 5. The closing of dairies upon the outbreak of an epidemic.

Other European countries have laws fully as stringent, and experience has proved the beneficial results of such laws, and each year finds the regulations more stringent and extended. It is reported that Prussian-Germany has thirty thousand persons employed to make certain that her meat and milk is fit for human food, while Saxony is not content to use home-grown pork unless thirty-six different specimens from each hog have been examined under the microscope to determine the absence of trichina.

The enactment of the meat-inspection law by the last Congress enables every state in this nation to secure to its people entire protection from the consumption of diseased meat and milk. This law provides a penalty for taking meat from one state to another unless it has passed inspection and bears the government stamp or seal, and by local regulation each board of health in the state of Iowa can compel rigid inspection of all meat and milk produced and sold within its jurisdiction. Every city and hamlet alike has the privilege and duty to protect itself from these sources of danger, and when the people understand these sources of disease and death they will insist upon rigid inspection. Physicians and veterinarians should consti-

tute themselves the advocates of sanitary food regulations, and if possible secure their adoption and enforcement.

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### ERGOT POISONING.

BY L. G. PATTY, *Council Bluffs.*

The summer of 1891 has been favorable to the production of claviceps purpurea (ergot) upon the wild rye that grows abundantly upon the hay (especially low land) throughout the state. Having had occasion to treat animals that were liberally supplied with hay that contained large quantities of ergot, I thought the symptoms produced in these cases might be of interest as to the action of the smut. One evening I was called to see a man's stock, who thought his animals had been poisoned by some malicious person. Arriving at the place I found five animals sick. Excepting one, they all showed the same general symptoms: dullness, loss of appetite, coldness of extremities and muscular trembling. Pulse was soft and full in part, in others wiry and quick. Temperature, sub-normal. Respiration, slow. In the excepted case there were colicky symptoms. Upon inquiry I learned that recently they had been fed on new hay, which led to an examination of the same, in which was a large quantity of wild rye which was extensively infected with ergot. The colic was combated with cannabis. Indica and stimulants were administered to overcome the depression, uninfected hay was substituted, and they made a rapid recovery.

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### NOTES.

LOCAL Veterinary Medical Associations should be formed in various parts of our state where five or more graduate veterinarians can conveniently and frequently meet, exchange experiences and discuss topics pertaining to professional work. Such local organizations will promote fraternity, zeal and scientific ability, and each attending member will soon discover that his mental grasp on veterinary science grows apace with the frequency of his attendance and the share he takes in its proceedings. Several veterinarians in the vicinity of Carroll have set the example by forming the Western Iowa Veterinary Medical Association, with S. H. Johnson, of Carroll, for president, and G. A. Johnson, of Odebolt, for secretary. We trust that this organization will endure and prove of much value to its members.

MICROSCOPIC inspection of pork intended for the German market has been established at New York, Boston, Chicago, Milwaukee, Omaha and Kansas City. This work is being carried on in a small way, and must continue so for lack of sufficient funds, and until Congress makes sufficient appropriation the pork products intended for home consumption can not be

inspected. Only a tithe of hogs killed in the many large slaughtering-houses can be examined. If the people of the United States desire to eat only inspected pork they must see to it that a sufficient appropriation is made by the next Congress.

THE election of Dr. W. L. Williams, of Bloomington, Ill., to the chair of Veterinary Science in the Purdue University, Lafayette, Ind., is a just recognition of the professional attainments of a well-known and highly-esteemed member of the veterinary profession. The high character of the work done by Dr. Williams in the past, is a guarantee of the credit he will reflect upon the college, the profession and himself.

THE Iowa State Veterinary Medical Association will hold its fourth annual meeting in the parlors of the Savery House, Des Moines, November 12 and 13, 1891. Arrangements have been made for a full programme, and a large attendance from all parts of the state is anticipated. Veterinary medical legislation, a subject of much interest to all veterinarians, will receive a large share of attention.

A SIXTY-POUND myo-fibroid tumor of the uterus of a cow is reported by Dr. S. W. McGrew, of South Omaha, Neb. The cow was greatly emaciated and the flesh presented a loathsome appearance.

THE reported action of methyl-violet or pyoktannin in one per cent water solution, would indicate it to be a useful remedy in specific ophthalmia of the horse, and its trial is recommended.

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## DEPARTMENT OF PLANT DISEASES AND BACTERIOLOGY.

[In this department all questions pertaining to plant life, especially interesting to physicians, will be considered. From time to time reviews will be given of papers pertaining to fungi, especially such as cause pathological conditions. Matters relating to the adulteration of foods and medicines will be considered. All are cordially invited to contribute to the columns of this department.]  
*State Agricultural College, Ames, Iowa.*

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L. H. PAMMEL, B. AGR., EDITOR.  
 (Professor of Botany, Iowa Agricultural College.)

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### SYMBIOSIS.

#### II.

As a continuation of the subject of Symbiosis, I desire now to call attention to the symbiotic relation of higher fungi and Phænogams. In the whole range of vegetable physiology there is scarcely a question which is of more interest than the relation of certain fungi to the roots of Phænogams. Fungi on the roots of orchids have been known for a long time. Prillieux called attention to them as early as 1856. Eidam states that they are universally distributed on orchids. These and others have referred to

the subject, but it was left to Pfeffer to suggest that the fungus on the roots of orchids have the same function as root-hairs.

Since many of my readers are not botanists, I should say a few words about roots and root-hairs. A plant like wheat produces a large number of roots which permeate the soil in every direction. The younger rootlets bear numerous small outgrowths from the epidermis, which are called root-hairs. The younger parts of the rootlet and the root-hairs are the vehicles through which most higher plants obtain the bulk of their water. The latter holds in solution the various mineral elements so essential to plant growth. The ash constituents of plants are potassium, magnesium, calcium, phosphorous, sodium, sulphur, chlorine, silica, and smaller amounts occasionally of zinc, aluminium, etc. The carbon of plants taken up principally as carbon dioxide (carbonic acid) through small rifts known as stomata, which usually occur on the under surface of the leaf. The nitrogen is taken up in the form of nitrate, as nitrate of potash, calcium, etc., or in the form of some salt of ammonium.

In the last few years many interesting papers have been published to show that fungi in some plants play an important part in taking up mineral and some nutritive matter from the soil. Kamieuski not only observed the threads of a fungus on the roots of pine-sap (*Monotropa Hypopitys*, L.), which is a colorless saprophyte, growing in humus soil, but is said also to grow on the roots of some trees. He ascribed to the fungus great significance in the nourishment of *Monotropa*, and on the other hand stated that *Monotropa* nourished the fungus. Schlicht has found the fungus on seventy-three different species of plants. In some orders it is entirely absent. Cultivated plants like chicory (*Cichorium Intybus*) and asparagus (*Asparagus officinalis*), when growing in humus soil, show the fungus. Frank, who has published a number of papers on the subject, calls the fungus *Mycorhiza*. He distinguishes two kinds, *ectotropic* and *endotropic*. In the former the fungus forms a pseudo-parenchymatous sheath about the absorbing roots. The threads penetrate between the epidermal cells while some of the hyphæ (fungus threads) spread through the soil. In some cases the fungus produces coral-like branches, the lateral branches resembling root-hairs. The *Mycorhiza*, or Indian Pipe, belongs to this class. In endotropic *Mycorhiza* the fungus grows and develops in the interior of the cells of the root, only a few separate threads extend outwardly into the soil. *Mycorhiza* on various heaths belong to this class. *Mycorhiza* is composed of more or less cylindrical-branched or unbranched threads, which grow in an apical direction. As a result of the intercalary growth a pseudo-parenchymatous tissue is formed. In some few cases the threads bear evidence of having clump-connections which occur in fungi like toadstool. These clump-connections are like haustoria of certain fungi, which serve as absorbing organs. The protoplasmic bodies of the cells of the root and

the fungus in the cell live together without injury. The presence of Mycorrhiza can only be explained on the following grounds :

1. It is a parasite, living on the organized material of the plant.
2. It is possible that the plant may live on the fungus.
3. The relation is a symbiotic one.

A number of investigators, notably Hartig, Gibelli and Tubeuf, believe the fungus is a true parasite ; Hartig asserts that the fungus is not persistent. During the summer, when trees take up the greatest amount of water and nutriment, a large number of roots are produced which are without the fungus, but that in the fall and winter the fungus appears on the roots. Experimentally, Frank has shown that the beech grows poorly without this fungus, and that in a sandy soil Mycorrhiza loses the power of insinuating itself with the root. In one-year-old plants of Iron-wood (*Carpinus*) Frank found the whole absorbing system covered by the fungus, which keeps pace with the later life and development of the roots of the plant. The chief points in Frank's papers are that Mycorrhiza sustains a symbiotic relation to the roots of some trees under certain conditions—perhaps all of our common trees. The fungus only appears in a soil which contains humus or undecomposed products of plants. The amount of humus greatly influences the growth of Mycorrhiza. Mycorrhiza carries to trees not only the necessary water and mineral matter, but organized matter directly from the humus, and it is only in this way that this organic matter can be used by the plant. The use of leaf-mold and humus for the nourishment of trees has therefore a new significance. It also serves to nourish humus plants without chlorophyll like *Monotropa hypopitys*. He came to these conclusions on the following grounds : The fungus is so closely united with the small roots, and in such positions that it would almost seem essential for these threads to take up the material and transfer it to the roots. The fungus occurs at all ages of the tree, and on all younger roots of the same. There is little experimental evidence to prove the correctness of Frank's conclusions. Yet the following experiment seems to be fairly good evidence that there is a

#### Literature—

- Tubercles on Leguminous Plants.  
 Mycorrhiza Prillieux: *Annals, des Sciences Nat.*, 1886.  
 Reinke: *Flora*, 1873; p. 145.  
 Pfeffer: *Insectenfressenden Pflanzen Landu. Jahrb.* Vol. VI., 1877, p. 997.  
 Kamlenski: *Les Organes Vegetatifs, d. Monotropa Hypopitys.* Cherbourg, 1882.  
 Schlecht: *Beitrag zur Kenntnis der Verbeurung und der Bedeutung der Mycorrhizen Inaugural Dirs.* Berlin, 1880.  
 Frank: *Ueber die auf Wurzelsymbiose Vermehende ernahrung gewisser Baume durch Unterirdische Pieze.* Ber. d. Deutsch Bot. Gesellsch., 1885. Vol. III. Heft. 4.  
 Ber. d. Deutsch Bot., etc. Vol. V. Heft. 10. Ber. d. Deutsche, etc. Vol. V., Heft. 8.  
 Hartig: *Centralblatt Bakt. u. Parasitenkunde.* Vol. III., p. 118. *Lehrbuch d. Anatomie u. Physiologie*, p. 149.  
 (10) Frank: *Ueber die Pilzseymbiose der Leguminosen.* Berlin, 1890.  
 Nard: *On the Tubercular Swellings on the Roots of Vicia Faba.* Philosophical Transactions. Royal Soc. London: Vol. 178, pp. 539-562. 1887.  
 Neronin's paper in *Mem. Acad. Imp. de Science d. St. Petersburg* X., 1886.  
 Erickson *Studier af ver Leguminosernas rothknolar* Lund, 1874.  
 Przymowski *Ueber die Wurzelknollen der Leguminosen* Bot Centralblatt, Vol. XXXVI., pp. 215-248, 280. 1888.  
 Benerlnck *Bot. Zeitung.* 1888. Nos. 46-50.

symbiotic relation. Frank placed fifteen plants in sterilized soil. Ten of these died, and where without the fungus, of the same number of plants in soil not sterilized, all remained alive. They were much superior in growth to those remaining alive of the sterilized.

As to the distributing of the fungus, it has been found in North America, Germany, Norway, Italy, Capetown and Australia. From the evidence at hand I think it is safe to consider all Mycorrhiza on the roots of colorless saprophytes as sustaining some beneficial relation to the plants upon which they occur, and in turn they are benefited by the plant. In chlorophyll-bearing plants, like oaks, the evidence is not so conclusive, yet there is something in favor of the theory of symbiosis.

#### WHY DO PLANTS BECOME DISEASED?

Notwithstanding that many botanists are engaged in looking up diseases of plants, very little is known about the cause or causes which lead a plant to become diseased at certain times. We know enough about certain fungi to say that when the germ-tubes come in contact with its host they enter it and develop in the tissues. The admirable researches of De Bary and others have shown that when there is seen on the barberry leaf the small spores which have come from the germinating winter spores of black rust (*Puccinia Graminis*) the leaf becomes infected with the Cluster Cup Fungus (*Æcidium Berberidis*). We also know, from the admirable researches of Kuehn, Brefeld, and others, that corn smut only enters its host at a very early stage of the development of corn, and so on. Other cases might be mentioned. But why are certain diseases so prevalent some years, and at other times scarcely traces of the same can be found. Potato rot (*Phytophthora infestans*) has been so destructive some years in Europe that the crop has been a total failure. The people of Ireland have suffered several times during this century owing to the destructive work of this fungus. We have had under observation for three years, on the college grounds, a disease known as spot disease of the cherry (*Cylindrosporium Padi*). In 1889 it was destructive alike to small budded cherry seedlings as well as trees set out in the orchard. In 1890, while the nursery stock was affected, the larger trees in the orchard were exempt; but this year all suffered severely. Again, Plum Rust (*Puccinia prunæ spinosæ*) appeared on several small trees of plums, the variety Chippewa. I have not seen it since on these trees.

There can be no doubt that certain conditions in the life of the plant effect the entrance of the fungus. Thus Hartig<sup>(2)</sup> gives as predisposing cause, youth, in which the necessary resisting material, as cork or cuticle, has not been formed.

*Old Age.*—Old pines are especially subject to the attacks of *Trametes*

(2) Lehrbuch der Baumkrankheiten, Berlin, 1882, p. 8.



*Pini.* The spores of this fungus only germinate in newly-wounded parts. At an early age of the tree, any wounded or abraded surface of the tree is soon covered with resin, which protects it.

*Time of the Year.*—The vegetative condition of plants makes them especially subject to disease, and this is when growth takes place. Rainy weather is a predisposing cause, not only because the spores germinate more readily, but because the plants contain more water.

Individual variations of plants also play a part; some plants are more resistant than others. It has been stated that the thin-skinned varieties of the potato are more subject to potato rot than thicker-skinned varieties. In another group are placed those diseases which are induced by external conditions. Thus a thick stand, and the consequent overcrowding or climatic conditions, may be important predisposing causes.

#### NOTES.

SIG. M. GIUNTI finds that direct sunlight prevents the development of *Mycoderma Aceti*, and therefore acetic fermentation. Even diffuse daylight exerts an inhibitory influence on it. Prolonged exposure to sun-light will not sterilize the fluid.—*Jour. Roy. Med. Soc.*, 1891, p. 513.

#### BACTERIA IN CHEESE.

Dr. Freudenreich has found a new bacillus, *B. Schafferi*, which is the exciting cause of the swelling of cheese. Swelling is due to a large number of holes of variable size, which are formed by the gaseous products of colonies of bacilli. The cheese becomes larger, soft and spongy.—*Jour. Roy. Med. Soc.*, 1891, p. 511.

Adametz has made a bacteriological examination of cheese known as Emmenthaler and Hauskase. The first contained 850,000 and the second 5,500,000 germs per gram. Disinfectants stop the ripening process. Nineteen species of bacteria were isolated from cheese. These bacteria, from their physiological properties, can be divided into three groups: 1. Those which are able to dissolve the paracasein or convert it into a softened condition, greater or less quantity of peptone or albuminoids are found, accompanied by agreeable and disagreeable odors. 2. Those which do not grow readily in sterilized milk, the mattered paracasein being a favorable nutrient medium. 3. Those which have no special effect on the nutrient material.—*Bot. Centralblatt*, Vol. 63, p. 26.

Brieger, in a paper on the subject of bacteria and disease, notices the ptomaines and toxins which are the direct derivatives of pathogenic bacteria. *Staphylococcus pyogenes aureus* throws off ammonia grown in meat broth while *Streptococcus pyogenes*, trimethylamin. Yet both of these organisms are intimately connected with septicæmia and pyæmia.—*Jour. Roy. Mic. Soc.*, 1891, p. 387.

H. MOELLER considers that the galls found on the roots of elder and eleagnaceae are due to a fungus known as *Frankia subtilis*. These galls were at one time supposed to be similar to the galls on clover, lupine, etc.—*Jour. Roy. Mic. Soc.*

THE German paper, *Milchzeitung*, states that the use of milk from animals affected with foot and mouth disease is very injurious to calvs. According to several investigators, more than 60 per cent of calves fed with this milk died.—*Zeitschrift für Nahrungsmittel Untersuchung und Hygiene*, Vol. 5, p. 157.

In October, 1889, there was an epidemic of typhoid fever in the village of Springwater, New York. Mr. George W. Rafter and M. L. Mallory(3), who reported on this, state that Dr. Ernst, to whom was submitted some of the water, found the Koch-Eberth bacillus of typhoid fever in some of the water. Bacteriological examination of contaminated water has not often revealed this organism. This may be due to several things. Dr. Dixon has found that the bacillus of typhoid when placed in the Schuykill water, lived not longer than five days, owing, perhaps, to the antagonism of petri-factive bacteria.

Novv has isolated a toxic product from the growth of the hog cholera germ which he calls "susotoxin." A rat which was given a dose of 0.1 and 0.05 g. of this substance injected subcutaneously, died in from three to four hours. In doses of 0.025 g. given a rat, caused sickness, but it regained health after three days. Later inoculations, although full doses were given, caused no changes in the animal.—*Philadelphia Medical News*, 1890, p. 231. *Centralbl. f. Bakt. u. Parasitenkunde*, Vol. 9, p. 829.

LAURENT, who has recently published an interesting paper on the tubercles of leguminous plants, finds that air is absolutely essential for the development of the organism. Tubercles which contain the reserve nitrogenous substance are dissolved by an enzyme. The race of *Rhizobium* studied by him was grown on gelatin, and pea bouillon. The most favorable temperature was between 22–26°C. Growth ceased at 30°C. A small amount of potassium and sodium nitrate caused cessation of growth. Sugar, however, causes the growth to start again. It appears probable to him that the nitrogen is taken up in this *Rhizobium* in form of gas, though this has not been demonstrated.—*Centralblatt, Bakt. u. Parasitenkunde*, Vol. IX., p. 703.

#### WET ROT OF POTATOES.

Dr. Ernst Kramer (4) has investigated wet rot of potatoes. It has been known for some time that wet rot of potatoes is not due to *Phytophthora infestans*, but to micro-organisms. Potatoes were carefully disinfected with

(3) Report on an epidemic of typhoid fever at Springwater, New York, in October and November, 1889. Annual Report of Executive Board, City of Rochester, New York, for the year ending April 7, 1890.

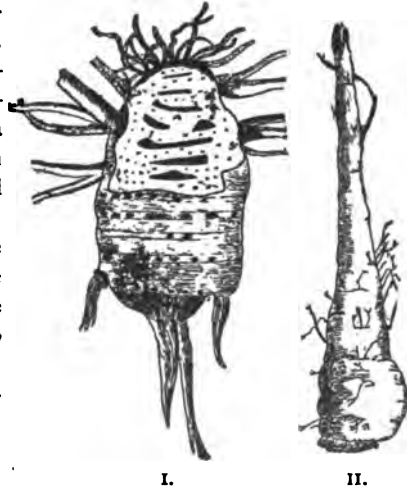
(4) Oesterr. landu. Centralblatt. Jahrg. 1, 1891. Heft 1, opp. 11–26.

corrosive sublimate, and then inoculated with an organism obtained from rotting potatoes. This organism produced typical rot. The organism caused the formation of butyric acid, but the organism has no relation to *clostridium butyricum*, which was supposed at one time to be the cause of this disease. The organism requires air for its development. It enters the potato through injuries on the surface, or through the lenticels (small rifts on the potato). Prof. Burrill (5) has recently shown that a widespread disease, which causes a rotting of the potatoes, is due to a specific organism.

No. 11 of Dr. Fraenkel's and Dr. Richard Pfeiffer's Micro-Photographic Atlas of Bacteria (6) is at hand. Thus far 56 plates and 115 figures have been published. This number contains excellent photographic representations of typhoid fever bacillus in sections; its growth on gelatins, and mounts from the same. A short account of the disease and occurrence of the organism is appended. The Pneumococci of Friedlunder and Frankel are treated and photographed in the same way. This work is indispensable for bacteriological investigation. Each number costs 4 marks.

In a recent number of *Pharmaceutische Rundschau*, Prof. F. B. Power reviews some cases of poisoning by the so-called Wild Parsnip (*Pastinaca saliva*). There is a very popular impression that when the cultivated parsnip runs wild it is extremely poisonous. Prof. Power has followed up, with some care, various cases said to have been poisoned by this plant. He finds, however, that it is due to another plant of the same family, known as Water Hemlock or Spotted Cowbane (*Cicuta Maculata*), the root of which has long been known as a deadly poisonous plant.

I append here figures of the roots of two plants. Figure I. is Parsnip. II. is *Cicuta Maculata*. The figures are greatly reduced, and have been kindly loaned by O. J. Farmer.



(5) Proceedings of the Eleventh Annual Meeting of the Society for the Promotion of Agricultural Science. 1890, p. 21.

(6) Mikrophotographischer Atlas der Bakterienkunde. Berlin.

## STATE ITEMS.

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DR. ENFIELD, of Jefferson, has returned from a month's visit to New York.

THE Medical Department of the Sioux City Normal University has been abandoned by its projectors.

DR. BALL, of Waterloo, has removed to Keokuk in consequence of his election to the Chair of Ophthalmology and Otology in Keokuk Medical College.

THE many friends of Dr. H. R. Page, at Des Moines, will be pleased to hear that he is slowly but steadily improving since his visit to Chicago four weeks ago.

THE new laboratory building for the Medical and Pharmaceutical departments at Iowa City is almost completed and will afford ample accommodation for the classes.

DR. WATSON, of Dubuque, spent some days in Des Moines last week, attending the reunion of the Crocker Brigade, of which he was one of the regimental surgeons.

DR. KENNEDY, of the State Board of Health, has just returned from his trip to the International Congress of Hygiene, in London. He reports a most interesting meeting.

ALL members intending to read papers before the next annual meeting in the Section of Obstetrics and Gynecology are requested to communicate with the Chairman, Dr. E. H. King, of Muscatine.

DR. J. M. EMMERT, of Atlantic, has just returned from Atlantic City, N. J., where he has been spending several months with his son, whose health, we are glad to learn, was decidedly improved by the trip.

DR. GERSHOM HILL, of Independence, was recently in Des Moines on his return from Harlan, where he had been called to give expert testimony in a murder trial which involved some rather interesting alienistic questions.

THE Missouri Valley Medical Society held a most interesting and successful meeting at Council Bluffs Sept. 21 and 22. Doctors Schooler and Pipino represented the profession of Des Moines. The next session will be held at Lincoln in December.

THE Regents of the State University at their September meeting elected Dr. W. D. Middleton of Davenport to the Chair of Surgery, Dr. L. W. Lettig to the Chair of Practice of Medicine, and Woods Hutchinson, of Des Moines, to the Chair of Anatomy.

WE regret exceedingly to hear that Dr. Williamson, of Ottumwa, has recently lost the use of one of his eyes from iritis, following *la grippe*. It is hoped that vision may be improved later by an ivideotomy, a hope which his many friends all over the State will heartily echo.

## READING NOTICES AND MISCELLANY.

It is reported that Koch has resigned all his official positions and recent honor through mortification at the manner in which the enthusiastic but ill-judged and sensational efforts of his so-called friends to "boom" tuberculin have collapsed. Well did the hero of old cry, "Against mine enemies I can defend myself, but who will protect me from my friends?"

LACTO-PREPARATA, as manufactured by Reed & Carnrick, is destined to become the ideal baby-food of the day. Evaporated within a few hours after leaving the udder, sufficient milk-sugar added to make it correspond with breast milk, the casein partially predigested, the whole then perfectly sterilized and placed in hermetically sealed cans, renders it as perfect a counterpart to the breast milk of any we know of.—*The North American Journal of Homoeopathy*.

"DIOVIBURNIA is pronounced by the most prominent professors of medicine as being the most powerful uterine tonic attainable. It is the remedy to right the wrongs and relieve the weakness of the uterus and appendages. It resuscitates to normal condition. It is a valuable remedy to prevent miscarriage, also nausea in pregnancy, restoring the entire uterine system, relieving all abnormal conditions of same."

THE never-tiring representative of a Louisville firm wended his way into our office and presented us with the most widely indicated Alternative Tonic yet offered. After apologizing for giving us a lecture on the "Activity of Iron, Arsenic and Mercury Combined" he wended his way to the next office feeling satisfied his Three Chloride Elixir will certainly be prescribed often—and it certainly will.

THE LAW AS REGARDS TWINS.—When twins are born in France, the last born is considered by the law the eldest! Consequently, if both survive, and, in case of boys, reach manhood, the second is called to the army to serve, being pronounced the eldest. By some extraordinary calculation the medical men who were consulted at the passing of the act years ago came to the conclusion that the last born of twins was always the first conceived.—*Medical Press and Circular*.

LONDON MEDICAL STUDENTS.—Medical students in London have been compelled to go through a course of four years' study, hospital attendance, and lectures before being qualified to appear for the final examination. By an order of the Grand Medical Council, of England, issued last month, the term of preparation has now been extended to five years.—*New England Medical Monthly*.

It is with pleasure that we call attention to the advertisement of the Cudahy Packing Company in another column. This is an age of pepsins and beef extracts, but we think that the circumstances under which these

preparations have been produced, justify us in expecting an article of genuine and more than ordinary merit. After three years of elaborate experiment upon an unlimited supply of the choicest raw material, they have placed upon the market a short but attractive line of thoroughly palatable preparations of these important aids to nutrition. We confidently predict that those who will prescribe these juices of western clover and corn-fed pork and healthy grass-fed beef will find themselves justified by the results obtained.

ANALYSES made by myself and others have shown that they (the ordinary wines of coca) vary greatly in the amount of cocaine which they contain, and that some of them are almost entirely free from this essential constituent; for a wine of coca without cocaine is like the play of Hamlet with the part of Hamlet left out. This deficiency is especially marked in a wine of coca of foreign manufacture which has had a large sale in this country, and which contains something less than half a grain of cocaine to the pint bottle. Disappointed in the result of my administration of these wines of coca, and recognizing the fact that wine is the best menstruum through which the active principle can be given, I represented to a gentleman connected with the Health Restorative Company, of New York, *who I knew had an exceedingly competent chemist in their employ*, the expediency of preparing a wine of coca that should contain a fixed proportion of cocaine, and at the same time be free from the tannin, resin, and other inert or deleterious substances present in the leaves. I also insisted upon the point that the wine used in its manufacture should be full-bodied and absolutely pure. In a short time they submitted to me a wine of coca containing two grains of the hydrochlorate of cocaine to the pint, and absolutely free from tannin and resinous matter. This preparation leaves nothing to be desired; the wine used in its manufacture is the juice of the grape uncontaminated by foreign substances. The taste would be pronounced pleasant by everybody, and the proportion of cocaine is large enough to give a medium dose, about the sixth of a grain, to each wineglassful.—*Wm. A. Hammond, M. D., before the Medical Society of Virginia, October 20, 1887.*

THAT WAS NOT HIS PROFESSION.—Mr. Van Stine: "Your friend who has just left us seems quite a pessimist, Miss Jones."

Miss Jones: "Oh, no! Mr. Wabash is an oculist, and they do say one of the finest in the city."—*Harper's Bazar.*

**Dr. J. M. Ball,**

Office: Woolley Building.

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# THE VIS MEDICATRIX.

THE JOURNAL OF

THE IOWA STATE MEDICAL SOCIETY.

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DECEMBER, 1891.

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SECTION OF MENTAL AND NERVOUS DISEASES.

CHAIRMAN'S ADDRESS.

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## PARANOIA.

GERSHOM H. HILL, M. D., *Independence.*

In common parlance persons having this form of mental derangement are called "cranks." There are other appellations for this condition such as "cracked," "a screw loose," "a bee in the bonnet" and "a hypertrophy of the ego."

*Monomania* was the name given to this form of insanity by Esquirol and more recently by most alienists, especially the French, but in its meaning it is misleading and of late, usage has given it so much latitude that its significance is vague, consequently, the term should be avoided. *Paranoia* is a compound word of Greek origin and simply means to "think wrong." It has been chosen as a substitute for monomania and the class of cases to which it is applied I will describe.

In this disease there is a defect in the brain which is almost always inherited; this predisposing cause is often the only one of consequence that can be found. If there is a basis for the delusion entertained, it is a trivial circumstance. "The disease is constitutional, it involves the highest logical processes primarily, but it does not warp them all equally, or some of them in fact, at all." There are, probably, more persons afflicted with paranoia outside the hospitals for the insane than in them.

This mental disturbance exists for many months and often for years, before it is recognized by relatives as insanity; the delusions are not revealed to neighbors or to strangers at an early day; not until they have become deep-seated and seriously disturb the mind.

Paranoia is not inaugurated by excitement of the intellect nor by a depression of the feelings; the chief delusions gradually become fixed without interfering with the health or the accustomed pursuits of the individual. The delusions which characterize paranoia (and enable the physician to

distinguish this form of mental derangement from all other forms of insanity in which there are also delusions), are persistent and not changeable ; another aid to a differential diagnosis is the fact that the memory and most of the faculties of the mind are, to a great extent, unimpaired ; again the delusions are systematized so that the statements made seem to be consistent and true. The false opinions entertained are usually concerning one's relations to God, to political government, to secret societies or to particular forms of injustice which prevail in the community.

"The delusions are connected with an encroachment upon, or an advancement of, the patient's standing in the world and assume the form of ideas of persecution or of exaltation.

"The former are more common. The ideas of exaltation sometimes logically flow from the ideas of persecution. Why is he persecuted? Because he is a person of superior qualities or of great influence, who must be gotten out of the way." There are also a few paranoiacs who are called erotic. "The essential feature in this class of cases is the delusion of being selected and loved by a person of the opposite sex, generally belonging to a higher class in society. The reciprocation in such a case is thoroughly Platonic." Since heredity causes insanity in both sexes, so this form may be found in both.

The active period of life is the age in which this disease is most common. As you will infer, this type of insanity is naturally chronic and although the tendency is not toward the loss of the faculties, the usual result is permanent, pronounced mental derangement.

Hallucinations, particularly of hearing, disturb the mind in some cases. There are two considerations which make this form of aberration important and a subject of general interest. All cases of paranoia are, at the outset and often for many years, cases of doubtful insanity. Not only are persons having a speaking acquaintance deceived, but alienists may now and then mistake the mental condition if they have not a complete history of the case with ample opportunity to learn all that lies in the mind of the individual. There is nothing suggestive of mania; the mind is calm and collected, conversation is natural and reasonable, the person appears well, adapts himself to the situation, exercises a good degree of self-control, and if in the hospital, is fit to be classed with the best. Very often it is with difficulty and delay that the few delusions possessed are drawn out. These delusions may not be recognized as such, because they may seem to be statements of fact. Dr. Brower describes the case of an eminent physician, in Chicago, who is a paranoiac, but at the same time carries on a successful practice in his profession.

The question may very properly be raised whether it is right to deprive paranoiacs of their liberty ; if so, when, and to what extent.

The kindred interrogatory as to mental responsibility, in conveying



property and in crime often presents itself in family affairs and in the courts. In reply, I will briefly say that each case must be considered by itself and decided on its own merits.

It should be understood and remembered that persons suffering from this form of mental derangement, may become homicidal. Guiteau was a paranoiac.

The time may come in some cases when forbearance ceases to be a virtue; so the person deems it duty to assert himself, to take the matter of stopping persecution, into his own hands, or to stay the tide of bad political government by taking the life of the supposed leader.

In my estimation, the proportion of patients in the hospital at Independence, at the present time, who may be classed as having this kind of insanity, is not more than two per cent.

#### ILLUSTRATIONS.

*First Case.*—Mrs. M. E. B., born in New York, aged 62 years, married, has five children, education fair, an active member of the Baptist church, and by occupation the wife of an hotel keeper. She is a bright, active, healthy woman, and was admitted to the Hospital at Independence, July 24, 1877, with the following history: "This is the first attack and the symptoms of mental derangement were first noticed eighteen months ago, when they were but slight; she is more talkative than natural, and manifested stronger religious impressions than usual."

The insanity was increasing in that her unreasonable opinions were becoming more positive and deep seated. She holds the delusion that she is the rightful sovereign of Great Britain; also that she is called upon by God to revolutionize the world and free it from sin, believes she has large sums of money at her disposal and is called upon by unknown friends to go from home in order to enter upon her public mission. She is a fluent talker, consequently, will soon become a famous lecturer and authoress.

She once attempted suicide by taking poison. One aunt and two cousins have been insane. Concerning the cause of insanity, the doctor says: "Can't give any satisfactory solution to this question; if I were to answer on knowledge solely my own, would say, superabundance of egotism." No results have been secured from medical treatment at home. This woman is still a patient at the hospital, and during all these fourteen years has continued practically unchanged in health, habits and mental condition. The original delusions persist and her reasoning faculties are still well preserved. She confidently hopes, 'ere long, to enter upon her career as queen of England and goddess of the world. Within a few weeks she has asked for a \$100, saying that I might check on her bank account, which amounts to a million and a half of dollars. Since she has been at the hospital, her husband and one son have died at home. Another son was also admitted to the hospital, at Independence, and after a few years

died of consumption ; he did not have the same form of insanity. She has always dressed well and been glad to entertain company. She, although gracious, is dignified. The confinement and deprivations of the hospital are for the purpose of testing her patience and fortitude. She is ignored and neglected ; the consummation of God's plan for her is delayed on account of the envy and unbelief which prevail in the world, but the future is bright.

*Second Case.*—L. M., born in Illinois, aged 47, single, education fair, religion, Christian Science and the "Golden Rule;" occupation a stock dealer. He is a man of excellent habits, except that he gets on a spree every few years, and is a gentleman in every particular. His health has been and is remarkably good. He was admitted to the hospital on the 26th of September, 1890, with the following history : His mother, a sister, an uncle and an aunt have been insane. He, as a child, was precocious and is still remarkably quick-witted ; is a close observer, a good judge of horses, cattle and human nature. He possesses a good memory, reads much, talks much in an easy and agreeable manner. In 1876, he undertook to join the Masons, paid the initiation fee and took one degree, but never went any farther. He has been suspicious of the members of this order ever since ; of late he charges his misfortunes to a conspiracy of theirs, and claims that Masons have a prevailing influence in business, politics and society. In January, 1890, while suffering from the effects of stimulants and under the sway of an hallucination of hearing, which convinced him that a man had killed his brother, he impulsively took a knife out of his pocket and stabbed this man. He has since seen this brother and knows that he has had false hearing, but he does not blame himself for the criminal act. He does not believe that he ever has been insane.

*Third Case.*—Mary H. D., born in Connecticut, aged 42, single, education common school, religion, none, health good, admitted to the hospital April 2, 1891.

This lady claims that she is not insane, that a mistake has been made whereby the grossest injustice is done her ; she did not wish to be placed with the patients for she had never seen an insane person in her life. Her statements are plausible, her behavior at the hospital natural. She required no medicine.

The following is a *verbatim* copy of a letter received last week from the sister of the patient. Since it gives a good history of a case of paranoia, I trust you will have patience to hear it read :

April 6, 1891.

GERSHOM H. HILL, M. D., *Independence, Iowa :*

*Dear Sir,*—In order that Mary D., my sister, may be successfully treated, I suppose it is necessary that you should know more about her and something of her parentage. On her father's side there has been one case of

insanity and that, a great grandfather of Mary. On the mother's side an aunt, who is now hopelessly insane, caused by an over-worked brain. Until the last few years Mary has been inoffensive, modest and retiring, preferred the company of ladies only, neither sought nor cared for the company of gentlemen; has always been what one would call "old maidish." She liked her neighbors and spent a great deal of time with them, even to the neglect of her own house-work. She was well liked and respected, and as is customary in this neighborhood, there was scarcely a day but she was at some of the neighbors, or they at our house. She enjoyed it. I write you this that you may know why she feels so badly that "no one comes to our house," as she frequently says. Her constant complaint is that the neighbors have all abused and insulted her, not only near neighbors, but acquaintances in the surrounding country; men of unimpeachable character she accuses of pushing her off the sidewalk whenever she goes up town. She makes no distinction of either sex or age; all treat her ill—all are combined to do her an injury. If a neighbor woman sits out on a front porch she says she uses some terrible epithets, "sits out there just to let me know she can have company and I can not." The same remark is made if another neighbor opens a window. One neighbor had a black shawl on her line airing; Mary called father's attention to it, remarking: "See that black rag hung out just to insult me." She attacked, with words, every one, or nearly every one that came to the house so fiercely that during the last year but few dared to call or come to see my brother on business. She called at people passing or at their homes, and several times went out upon the street to them. She has never attempted to touch any one, but uses most abusive, unreasonable language that the tongue can utter. These scenes always ending in "nobody ever comes to our house."

This has been going on more or less during the last three years. In the meantime she has been doing the house-work for my father and brother, not in a good way, but very slightly and very forgetfully. While getting a meal she would watch the windows to see who was passing; perhaps carry on a conversation with those at home as rationally as any one. The imaginary abuse did not rest alone with her neighbors; either we abused her or we insulted her—we went to a neighbor's to talk about her. We at first thought that she was just ugly, all the time knowing it was very unlike her to quarrel in such a public manner. Some of the neighbors thought the same, others pronounced it insanity at the first outbreak. Her health was generally good. Sometimes she complained of a terrible pain in her head; would not take medicine. If a doctor prescribed for her she would take a little of his medicine and throw the rest away. We waited and hoped she would get over these imaginations, for imaginations they are. We have good, kind, respectable neighbors, those who consider it a degradation to insult or injure anyone.

During these years I have kept my school, teaching eight months out of the year and spending my vacations at home. I could not believe Mary was crazy; she was so sane upon every other subject. To be sure her house-work was not well done, and she neglected herself, cared but very little how she dressed, and took no interest in anything for any length of time. She always liked to read very much; never has tired of that. We were advised last fall to send her to you, but we could not think of such a thing. This spring she is no better; we felt it our duty to send her where she can be treated in a more successful manner than we could possibly treat her here. A year and two years ago I told her to go away and visit some of our relatives; stay as long as she wished and have a good time; I would come home and keep house. She would say she would; believed it would do her good, but perhaps the next morning she would say: "You just want to get rid of me; I won't go one step." I had her visit me where I am teaching, and with the help of my friends made her stay with me as pleasant as possible, but when she came home she would be worse than ever with her neighbors. Last summer when she visited me I noticed that she was very nervous and did not take the interest in those that were trying to entertain her as she had done heretofore; wanted to go back home, and did not stay as long as she had intended. Until the last three years she had been quite slender, seldom weighing over 130 pounds; her size now is unusual.

Previous to her trouble she was of a kind disposition, but rather quick tempered, not easily controlled, but never held a grudge.

About eight years ago a young man, an acquaintance from a neighboring town, was braking upon a train that passed near our house. He would bow to Mary and she would answer the salute. This was kept up for several months. On his side it was probably only a mark of friendship. She, it seems, became interested, and not knowing much of the world outside of her own home life, she thought his attentions were something sincere. Finally he ceased to notice her altogether. She thought he had become offended at something, therefore she wrote to him inquiring the cause, but he did not answer the letter and soon went on to another division. She repented having written and wrote to me telling what she had done; said if I did not do something about it she would go crazy, and that he had shown the letter to all the brakemen and conductors, and that they were insulting her every time they passed. How much of this is imagination I cannot tell, neither can my father nor my brother; they never noticed anything of the kind. I wrote to her telling her to pay no attention to them, but to keep out of sight, that it was the way with train men to wave the hand or bow to every lady they saw. She made no more trouble about that until three years ago when she commenced this neighbor trouble, and the beginning of that was with the depot agent, his wife, and a brother, a

brakeman. She accused them of telling the train men to insult her. We know that is not true. At that time the agent and his wife were her most intimate friends, and are most estimable people.

I write you this hoping it may aid you in restoring her to good health, both mentally and physically. Mary has been my only correspondent from home, and her letters have never shown the least symptoms of insanity. Respectfully yours,

K. L. D.

April 11, 1891.

MRS. D. AND MRS. P.:

*Dear Friends*,—I have received a letter from Kate this morning, but I cannot answer it. She has treated me cruelly by sending me here. May God forgive her, for I do not believe that I ever can. How did she know how I was treated? I was not insane and every one knows it; I was not sick. If I have a friend in this world I want them to get me out of here. Will you tell Kate why they have treated me the way they have done in our town? Why wouldn't they tell me what it was for? I am well and would like to get out of here. Tell Kate I have received the things she sent me. I think they do all they can to make it pleasant for me here; but I cannot be happy in a place like this. I would like to hear from you and Mrs. P. I cannot write to Kate for she had no business to send me here. She wrote that pa is better; I am glad he is. You can show this letter to Kate. You can tell her that she need not send me any advice, she had better take a little herself. I cannot believe that she has gained friends by sending me here. I think that you and Mrs. P. are good friends to me, and will help me if you can. Kate has been deceived, and you know it, and I want you to tell her so. The doctor told me that he had received a letter from Kate. I do not know what she wrote to him. He told me that she wrote that my troubles were all imagination, and that is the same as to say that I am insane. There is not one in our town but what knows better. She was not at home and knows nothing about how I was tormented and insulted. Why don't they tell her what it was for? I shall never write to Kate without she writes and acknowledges that she has done wrong by sending me here. Your friend,

MARY D.

#### DISCUSSION.

DR. REYNOLDS: *Mr. President*,—The word paranoia is a new word and means very little, but it will have to be humored for a time, and then will then pass out of existence, for I think the public, and lawyers particularly, will not part with the word monomania, which they know all about, for the word paranoia, which they know nothing about. In a recent visit to the hospital, I was struck with the remarkable increase of paranoia since my last visit. In going through the wards we came across a case which I had called simple mania, or, as it has been called, simple delusion, and that

was a case of paranoia. We then came to a case of melancholia, as I considered it, with persecutory delusions ; that was a case of paranoia. Then we came to a case of simple delusions, and that was a case of paranoia. And then we came to the case of a young man who had killed his father by some accident or altercation, and that was paranoia. I asked, is this infectious? No. Is it contagious? No. Is it epidemic? No. Then, I said, it must be endemic, the increase is so remarkable. I think the word is a very new one, but means, if applied to the right cases, no more than a class of cases characterized by hereditary origin possessing the delusion of a fanciful character, and having this peculiarity that, while they never become very insane, they never get well and rarely die.

DR SMALL: *Mr. President*,—I have felt very much interested in this paper, and there is one thing I would like to call attention to, and that is the fact that we will never be able to catch these patients, or these paranoiacs, if we wait until we catch them in their reasoning. Their reasoning is sound. If we wish to catch them, we must begin at the basis. Their basis is wrong ; their reasoning is right, but they start from the wrong basis.

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#### DIAGNOSIS OF INSANITY.

SARA A. PANGBURN KIME, *Fort Dodge*.

Formerly the question of insanity was one of the simplest with which the physician had to deal. Indeed, his opinion regarding it ranked on the same level with that of courts, legislative bodies and laymen ; the latter frequently decided the matter for him, and, according to existing standards, correctly, too.

No amount of medical learning, experience or acknowledged ability in other directions increased in any degree the value of his views on this particular subject. Skilled alienists there were none, and plainly there was little use for them. As insanity consisted solely of those types of mental diseases characterized by acute maniacal excitement, the subject was rendered so clear and simple that all who ran could read, no matter what their grade of intellect. All other forms of the disease, of which there is a far greater number, passed unrecognized. A man in the deepest gloom of melancholia might strangle himself, or his friend, the supposed cause of his woe ; or the delusional maniac might commit crimes innumerable, including murder, but, not raving, his acts were considered sane, and therefore punishable. But medical science has advanced of late years, and in its progression there has developed in the minds of the people a respectful consideration for the physician's opinion regarding the sanity of an individual, and his measure of responsibility for acts committed.

With each successive step of advancement in the knowledge of mental

diseases, and the various forms and conditions under which it manifests itself, there comes a corresponding weight of responsibility to him who shall answer the question: Is this man, or is he not, insane!

Life, oftentimes, liberty and the pursuit of happiness are at stake, and he who would either consign his brother to the mercy of the asylum, or else send him out among his fellow-men to do incalculable mischief, if not commit actual crimes, must know what he is about before he answers decisively. And yet it is a notable fact, in the profession at least, that the general practitioner is seldom called upon to decide a question about which he knows so little.

While the rapid strides forward in some branches of medicine during the last decade or so have been phenomenal, yet it cannot be said that our knowledge of diseases of the mind and nervous system has kept pace with the advancement along other lines.

The question often arises, why is this so? The investigation of these diseases is manifestly much more difficult than those of other parts of the body. Then, too, our medical colleges display an amazing indifference to this department of medical education. A few lectures, a half dozen or so, usually constitute the total information given the aspiring medical student during his college course, and there is little wonder that he goes out feeling that it is a waste of time to give much attention to those diseases, which have been so slightly emphasized by his instructors.

I regret to say that when I received my diploma, my knowledge of insanity consisted solely in what I could gather from the magnificent array of facts offered in five lectures on the subject. And yet, unfortunately, my first professional duty was, not to write out a prescription or answer a sick call, but to go into court as an expert witness and testify as to the sanity of the defendant. The imagination, better than words, can picture the pitiable spectacle. And yet I was better off than some of my class-mates, who had graduated without having heard even one lecture.

In view of the fact of this marked inefficiency of training on this subject afforded by a majority of the medical schools, the natural consequence of seeing the general practitioner every now and then hopelessly entangled in questions pertaining to diseases of the mind is to be expected. At the very first step, the diagnosis of insanity, the floundering begins. Well over this, the rest is moderately smooth sailing so far as he is concerned.

It is not the purpose of this paper to enter into a detailed description of the many varying signs and symptoms of insanity or to attempt to show just how a diagnosis in all cases can be made. Such knowledge can only come from careful study and experience. There are some general rules, however, regarding this subject, which, if fixed in the mind of the practitioner, will result in profit to the afflicted, to society and to himself.

The late Dr. George M. Beard once said that in order to know when a

man is insane, you must know when a man is sane. Neither sanity nor insanity can be clearly, concisely and accurately defined, but according to Beard, the symptoms of sanity are as follows :

1. Activity of the instinct of self-preservation.
2. Adaptation to environment.
3. Correspondence of character to age and station.
4. Rememorable consciousness.

He who responds favorably to the foregoing tests, may be declared to be sane; he who does not, insane. These tests understood and applied would, generally speaking, prove a great aid in making a diagnosis. But to draw a straight and fixed line, on one side of which you will place all the sane and on the other all the insane, is out of the question; as there are some people who will be constantly jumping back and forth across the line until you cannot for the life of you tell where they belong.

At the very shadow-line of insanity, we find individuals whose surroundings so support and hold them in check that they pass as rational members of society. They may possess genius of exceptional brilliancy, and yet, these same persons, when brought in contact with explosive forces, quickly give way and become lunatics of pronounced types. Such characters as Charles Lamb, De Quincy, Charlotte Bronte, Edgar A. Poe, and Chatterton are often mentioned as having been possessed of this high order of genius, together with eccentricities exaggerated almost if not quite to the verge of lunacy. Even the single criterion of the existence of a delusion or hallucination is not alone sufficient on which to base our judgment, especially if the delusion or hallucination is consistent with the surroundings of the demands of the times. Sir William Blackstone's commentaries on the laws of England disclose the author's belief in witchcraft. Martin Luther is said to have once declared that he had seen the devil and thrown an ink-stand at him. This hallucination occurred at a time when the Church of England required a belief in a personal devil, and in itself was no indication of a diseased mind. Such beliefs held to-day, however, would point conclusively to a disjointed mental state, while in the instances referred to, they only represented the individual's complete harmony with their environments.

It is in the unpronounced types of insanity, or in those persons living on the extreme borderland of insanity, that the physician in making his diagnosis may be said to fight his drawn battles with this wary and insidious enemy of the mind. It is like chasing the "will o' the wisp." One moment you see it, the next you don't; and altogether the contest is a most harassing and perplexing one.

Probably one of the commonest errors made in deciding these doubtful cases is in the setting up of some imaginary standard by which to measure them. The truth is, every sane individual is, or should be, the standard



with which he is to be compared when insane. The placing of your patient alongside of your own standard, or of some one's else, is profitless; but place him alongside of his sane self and note wherein he differs. You may find that before suspicion was directed against him, he responded but feebly to the tests of sanity, and to compare him with a better developed and sounder intellect could only result in erroneous conclusions. If you are fortunate enough to have had a personal knowledge of the suspected person's previous character and natural disposition, the matter is greatly simplified. Otherwise, you must depend on inquiry to reveal their former habits, temperament and mental peculiarities, both hereditary and acquired.

Symptoms of insanity usually begin in the moral nature of an individual. There is at first a decline in manners, or in minor morals; afterward more complete moral decline. The perceptive faculties next show loss of power in an inability to originate and acquire thought; the will weakens and memory fails.

The different forms of insanity, which are nothing more or less than groups of symptoms, all show first moral, then intellectual decay.

Our insane asylums do not by any means contain all our insane. Society everywhere is sprinkled with persons whose mental state renders them unsafe to be at large. Crimes against morals, property and life are daily committed by these persons. Our criminal courts sentence them, and our jails house them while serving out their time; after which they are turned loose again to repeat their offenses. These facts point directly to the lamentable weakness of the medical profession in not recognizing these misdemeanors to be the outgrowth of disease.

Many suicides occur annually, which, if the true conditions were understood, might and ought to be prevented by the exercise of proper surveillance and restraint, either within or without an asylum. Many of these cases occur while the unfortunate subject is in the incipient stages of insanity, or else has passed into the more pronounced forms of the disease, and no warning word has been spoken by either friends or physicians with a view of averting the fatal act. Indeed, many times no suspicion of mental instability exists until after the overwhelming proof of a lifeless form confronts the mind. Then, when too late, the true diagnosis springs to the lips of everyone. A little questioning of friends is quite sure to reveal the fact, that for days, weeks, and it may be for months previous, the victim was known to have displayed an unaccountable alteration in manners, habits and disposition, but no significance had been attached to the change. True, many of these cases never come to the notice of the physician; but when they do, many times a startling obtuseness or utter lack of appreciation of significant symptoms is too often manifested.

During the last few months there have occurred in my own county at

least two suicides, which, in my judgment, could and should have been prevented.

One a man upward of 60 years of age, who had previously been quiet, sober, industrious and unemotional, was noticed by his family and friends to have become restless, irritable and despondent. Although his farm and stock were in an unusually prosperous condition, he saw nothing but disaster and ruin confronting him, and frequently expressed his desire to die. His family gave no particular attention to his changed disposition, but pronounced it only the vagaries of advancing age. One afternoon he followed his hired man about the yard, imploring him to kill him, and even placed his head upon a block and begged that it be chopped off. And still he was allowed his liberty. Early the next morning, before the family were up, his wife was startled from her bed by a heavy fall in the kitchen. Hastening out, she found her husband lying on the floor with a fatal cut in the throat, and a butcher-knife lying by his side. Such a termination was inevitable in the midst of such indifference. Well-directed restraint was all that was needed here to avert the calamity. The circumstances were rendered more pitiable by the fact, that the shock was so severe to his wife that she survived him only one week, though previously she had been in comfortable health.

The other case was that of a woman past 40 years of age, who, with her husband and family, removed, something more than a year ago, from their old home in Illinois, to a somewhat isolated neighborhood in Webster county, this state. To the woman, the change was not an agreeable one. The new conditions in life, and new associates, instead of absorbing her interest, only served by way of contrast to bring more vividly to her mind the loss of the old home and old friends, for which she continually repined. Her despondency deepened from month to month, and one morning not long ago her lifeless body was found by her family suspended from a beam in the cellar, where she had ended her long prospect of misery and loneliness.

These, and similar cases, should convince us that as physicians we are in a measure responsible for these occurrences, in failing to bring out unmistakable symptoms of mental disease, or not properly interpreting them, whereby efficient means can be instituted to guard against self-destruction. They too clearly prove that the public should better understand some general truths concerning the approach and manifestation of insanity. Who, if not physicians, are responsible for the state of public opinion regarding this and kindred subjects? No one can justly blame the friends in the cases cited for not having perceived the danger. How could they know there was danger without a warning, and who was there to warn them except the physicians.

One of the important facts the public should understand is: First.

That the great majority of insane people do not rave. Second. That the formative stage many times extends over a period of weeks and months, and that during this time skillful treatment and proper restraint may permanently arrest the disease. Third. That a change in disposition, habits and inclinations, without any appreciable cause, is always indicative of mental deterioration, even though the capability of conversing sanely on ordinary topics remain unaltered.

Since no household can be declared secure against a visitation from this, one of the direst calamities that can befall humanity, we, as progressive medical men and women, should seek, first to acquire and maintain the highest possible understanding of the subject, and then endeavor to sweep away the cobwebs of superstition and ignorance from the public mind, and thus directly lessen misery, immorality and crime.

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## NEURASTHENIA.

BY E. HORNIBROOK, M. D. *Cherokee.*

Knowledge of the etiology symptoms and treatment of nervous diseases has accumulated rapidly during the last quarter of a century.

Previous to 1865 the terms melancholia,<sup>5</sup> hypochondriasis and hysteria were used to designate most of the conditions which manifested neurotic symptoms without known pathological lesions.

The writings of Beard, Mitchell, Playfair, Clark and others have, in recent years, directed attention to a group of symptoms which have been considered indicative of neurasthenia, or nervous exhaustion.

To systematize some of the facts which these writers have observed and recorded, and to supplement them by some observations of my own, shall be the object of this paper.

They have described cerebral and spinal neurasthenia as if they were distinct and separate diseases.

The clinician finds the differential diagnosis difficult to make, and as the treatment for both is identical, they may for practical purposes be considered together.

The morbid fancies, perverted sensations, and painful impressions, as well as physical and mental disability resulting from these abnormal nervous conditions, may be considered as an entity, so protean in its forms that it will often baffle the physician and tax his resources to the utmost.

The symptoms are, briefly, depression of spirits, physical weakness, abnormal sensations, mental hebetude, painful cerebration, pain in the head, pain in the back and limbs, creeping sensations in different parts of the body, as of insects under the skin, cutaneous eruption, a "band" feeling around the head, sleeplessness, irritability and unnatural sensitiveness to

physical or nervous impressions, fatigue from slight bodily or mental exertion, inability to recall, at all times, the words necessary to express ideas, liability to use the wrong word, a tendency to omit letters in spelling, especially the last letters of words, excessive and sometimes unnatural sexual inclinations, often loss of sexual power, and almost always aggravation of the symptoms by sexual indulgence or by perversion or improper use of the sexual system. Indigestion, and often imperfect action of one or more of the organs concerned in assimilation or excretion, a brittle and friable condition of the hair and nails, the former often turning white in patches; disturbed and dreamy sleep, with inability to distinguish whether the dream has or has not been a reality for some time after awaking. This latter symptom is one which I have frequently observed myself, and is not recorded in the text-books.

In all my observations this symptom is combined with an increase of temperature and upon the coexistence of these two, I have predicted, when other indications are present, a definite pathological condition which will be shown in the following cases.

Experience has gradually led me to the conclusion that most of the symptoms mentioned are attended or caused by hyperæmia or anæmia of the cerebro-spinal centers.

Hyperæmia can generally be traced to over-work, suppression of a natural discharge, or the improper use or abuse of the sexual functions.

Neurasthenia, due to cerebro-spinal anæmia, is often caused by inanition, which may result from improper or insufficient food, bad digestion, or it may be caused by severe nervous shock or some exhausting discharge.

There is a third class, not so common in my experience, due to nerve strain from improper action of some of the organs of the special senses. Eye strain from defective accommodation or from contracture of one of the orbital muscles, produces some of the most aggravated forms of neurasthenia.

The cases recorded of this form of the disease are so numerous and exhaustive that I can add nothing to the information already published on that part of the subject. My own opinion is that the eye strain produces cerebral hyperæmia, and *that* pathological condition causes the symptoms of nervous exhaustion.

Prof. Ranney unwittingly gives support to this view, for he says, in his lecture on "Hyperæmia of the Brain and Its Coverings": "Eye strain (from an uncorrected refractive error or imperfect adjustment of the ocular muscles) often tends to excite and maintain passive cerebral hyperæmia."

I shall only have time in this paper to give a few cases illustrative of cerebral hyperæmia and one of cerebral anæmia resulting from nervous shock.

*Case 1.*—April 1, 1879. H. E., physician; age 40 years; has been in

practice eighteen years ; always worked hard ; practice large ; moderate and temperate in every respect. Never uses alcohol except to stimulate his flagging powers when over-fatigued. This occurs frequently, and the use of stimulants is always followed by headache. Had engaged one year previously in a political contest and a business enterprise with which he was unfamiliar. He did not relinquish his practice, and for the last twelve months has worked an average of eighteen hours a day.

During the first nine months of this unremitting labor, he felt a sense of exhilaration, self confidence and a capacity for work without fatigue, which had astonished his friends and himself. It was no unusual thing to work at his profession for twelve hours, then address a public meeting, retire at 4 o'clock in the morning and commence work at 8. After a hard day's work at his profession, he would frequently spend the night in managing his business.

Nine months of this unreasonable exertion was followed by headache and a sense of constriction around the head. He found that in adding up long columns of figures, his mind would become confused, his hand would sometimes tremble in the morning, there was a constant sense of weariness, he would find words misplaced in his business letters and syllables often dropped at the ends of words. Cerebration became painful, bowels constipated and digestion impaired. For these symptoms he resorted to violent physical exercise, doing most of his traveling on horseback, which had been previously done in a carriage. He took more sleep, but his dreams were frequently troublesome, and it was often hours after waking before he could convince himself that the visions of the night were not realities. At a hotel in Montreal, he complained in the morning, that dogs had been fighting in an adjoining room all night, and it was not until after he had examined the premises that he could be convinced the rooms next to his had not been occupied. He is strongly built and well nourished. No hereditary tendency to disease of any kind, muscles hard and well developed, pulse 80, temperature 99 $\frac{1}{4}$ . Cheeks flushed, skin transparent and veins in the cheeks visible. Says he is strong enough to walk ten miles ; but conversation or writing or any attempt to do business causes such a confusion of intellect that he cannot control his thoughts ; or rather his mind becomes a blank, so that he has no power to think consecutively on any subject. Appetite good ; headache is relieved by ergot, which he has taken frequently, but is aggravated by alcoholic stimulants, or arsenic in the smallest quantity.

Rest and recreation were advised. After two months' rest, headache and sense of compression around temples were alleviated, but the nervous depression had increased. The nails became brittle and the hair tinged with gray ; could not write a letter or transact any business without bringing back his sufferings. Prescribing for one patient would cause the most

excruciating headache for twenty-four hours. Pulse 80, temperature 100. Has slight attacks of vertigo occasionally. Strength has failed, so that, now he can go up stairs with difficulty, heart palpitates on the slightest exertion. Has been smoking to excess since he quit work.

By resting for a year and abandoning the use of tobacco, except in moderation, he gradually improved, and was able to resume his professional duties; but for five years he had to avoid over-exertion or severe mental application. He is now in perfect health and continues to enjoy a large and lucrative practice.

*Case 2.*—May 12, 1890. Mrs. G., aged 23 years, married five years, has never been pregnant, fleshy, well developed, cheeks red, veins visible through skin of cheeks, eye brilliant, pupils dilated, respond sluggishly to light, accommodate readily to distances, eyelids twitch when they are closed, pulse 100, temperature  $99\frac{1}{4}$ . Heart palpitates violently after walking up office stairs, fatigued by slight physical exertion, cannot apply her mind to any subject for more than one or two minutes without intellectual confusion, sense of constriction above eyebrows, constant feeling of fullness in the head, and throbbing when she lies down,—but no severe pain, menses irregular,—intervals of from eight to twelve weeks. Has membranous dysmenorrhœa. Flow scanty. Head symptoms are relieved for a few days after menstruating. She is irritable, irascible, unreasonable and exacting, which is different from her usually amiable disposition.

Suffering commenced more than a year ago, first complained of shooting pains through muscles of extremities and head, with flashes of light before the eyes.

Reflexes all normal. Mother healthy, father said to be of unstable nervous organization. He had suffered from repeated attacks of depression of spirits and general nervous irritability. Patient's sleep has been irregular, disturbed and dreamy, from the first. At present, dreams seem realities and can scarcely convince herself that things which she has dreamed about have not been real occurrences.

Treatment first directed to relieving the dysmenorrhœa and restoring the menstrual flow to its normal regularity. Dilation of the cervix, intra-uterine medication, hot foot and sitz baths, aloetic purgatives, hot vaginal douches, and binocide of manganese were resorted to.

The symptoms gradually subsided as menses became regular and painless. Temperature continued above 99 and the flushing of the face did not subside for several months. Temperature and flushing being greater before each menstrual period or if the time of its onset was protracted. Gradually improved till Jan. 1, 1891, when the menstrual function was normal, she declared herself well and ceased attendance.

She is now, March 15, 1891, in the opinion of her family physician, three or four months advanced in pregnancy.

*Case 3.*—Oct. 20, 1890. Mrs. F., aged 35 years, clergyman's wife, large, well developed, countenance pallid, veins of face bluish and prominent. Mother of four children. Last birth twins, June, 1888. During the lying-in period her residence was struck by lightning and her husband injured. She was greatly shocked at the time. No nervous or hysterical symptoms developed, however, and she was able to be up at the usual time, but found that she was easily exhausted.

No mental effort could be made without fatigue; receiving company or attempting to assist her husband in his avocations, produced great depression and inability to sleep. In conversation or teaching her Sunday-school class, she could not command the right word at all times. Her correspondents noticed that her sentences were not well turned, and that the commonest words were misspelled; words with no meaning placed in the middle of sentences, and the final letters often dropped.

Says she is not weak, but she cannot work or think. Great depression of spirits and anxiety on account of her mental and physical disability. Appetite good, bowels regular and menstrual function normal. During the last three months, has had constant pain in the head, dimness of vision, and feeling of compression above the eyebrows. All these symptoms are aggravated by any effort to think or work. She is losing self-control, becomes nervous, with cold hands and feet when seeing persons approach the house, temper irritable and memory bad; pupils dilated, do not respond to the stimulus of light, adjust themselves slowly to distances, hearing has been failing since time of fright, can hear watch four inches from each ear, rapid conversation makes a confused sound, which she cannot understand, but a slow, distinct intonation can be easily understood, even if the voice is not loud. Pulse 84, temperature 97½. Examination of the ear shows the drum membrane pale and flaccid. Hearing improved by dropping contractile collodion upon the membrane. Advised absolute mental rest, passive exercise, good diet, counter irritation behind the ears and over nuchae, and arsenic and iron internally.

She rapidly improved, her pupils became mobile and all the other symptoms except the partial deafness, quickly disappeared.

At the present writing, March 15, 1891, she can write a letter correctly, provided it is short, and she does not attempt one more than one in twenty-four hours. Prolonged mental exertion or physical labor brings back her disabilities. This case is an excellent illustration of the fact mentioned by Ranney, that "Strong and sudden emotions, shock," \* \* \* etc., "are not infrequently followed by cerebral anæmia."

*Case 4.*—W. F., aged 27 years; manager of a general store; married eight months; has been suffering from symptoms analogous to those enumerated in last case, for six months. Says his work has been no harder than usual. Finds it more difficult day after day to accomplish his tasks.

Is nervous, irritable, forgetful, and depressed in spirits; digestion bad; sleep dreamy and disturbed; dreams appear to him realities; and his wife says that three days after he has dreamed, it is impossible for him to tell whether the dream was an actual occurrence, or not. After that time dreams fade from his memory, and he stoutly protests that he never had such thoughts, and that those who tell him of them are trying to impose on his credulity. His heart flutters from slight exertion or mental perturbation; frequent sense of insects crawling under his skin. Pulse, 120; respiration, 30; temperature,  $99\frac{1}{2}$ ; face constantly flushed; veins not apparent. Thinks his circumstances would not admit of his raising a family, and has been practicing "male continence," after the method taught by Dr. Noyes, of the Oneida Community.

Prescribed rest, recreation, out-door exercise, and ordered him to live *absque marito* for a lengthened period. Under this regimen he is rapidly improving.

I have ventured to present these four cases, not because the symptoms are unusual, but because they resulted from different causes.

The first was undoubtedly brought on by over-work; the second, partly due to heredity, and partly caused by suppression or irregularity of the menses; the third is an excellent example of neurasthenia, resulting from mental shock or "sore brain," in which, I think, cerebral anæmia was the pathological factor. The fourth was caused by misuse and abuse of the sexual functions, and it is but one of many which have come under my observation, resulting from the same or similar causes. The investigations of Dr. Vãnderwerker among the women of the Oneida Community, go to show that uterine diseases were not more common among the females of that sect, than among women generally. We have no well established medical data upon which we can decide whether nervous exhaustion was more common than amongst others. I have been frequently told by lay observers, that both men and women wore a dejected, depressed and jaded aspect.

Be that as it may, my own observations, and the observations of other medical gentlemen of age and experience, leave me no reason to doubt that sexual excesses and sexual perversions cause much of the nervous exhaustion that comes under our notice.

Constant or too frequent sexual excitement undoubtedly produces spinal hyperæmia, which is readily propagated to the brain, and results in a series of symptoms peculiar to the cases which I have enumerated. The popular opinion in the profession seems to be, that cerebro-spinal anæmia and neurasthenia are almost synonymous terms. This need not be wondered at, when we consider how nearly alike are the symptoms of the two pathological conditions. The first, second and fourth cases were undoubtedly caused by cerebral hyperæmia, and they are but samples of many which I have observed, due to the same causes.



Professor Ranney says: "The prolonged activity of the brain protracts the determination of blood to the head (which is requisite to maintain that activity) beyond its proper limits. The continued over-distention of the cerebral vessels causes the coats to lose their contractility, and the active hyperæmia which at first existed becomes passive." It will be observed how close the symptoms of cerebral hyperæmia, as detailed by the same author, tally with the symptoms enumerated in case 1. He says: "Headache, and throbbing in the head, is a very constant symptom," \* \* \* etc. "Stimulants usually increase it. Prolonged mental efforts bring about a confusion of intellect early in many cases. This is particularly noticeable when mental exercises requiring concentration, such as adding up columns of figures, solving mathematical problems, reading philosophical works, etc., are attempted." Case 2 shows that neurasthenic symptoms may be due to partial suppression of the menstrual flow—when this occurs in one who inherits an unstable nervous organization. The third case, that from nervous shock, is only remarkable from the close analogy of the symptoms to the cases caused by cerebral hyperæmia.

A differential diagnosis could only be made by the low temperature, the condition of the membrana tympani, and by the fact that the dreams never appeared to the patient after waking to have been realities.

That the symptoms in case 4 can be fairly attributed to the sexual excitation without ejaculation, seems to admit of little doubt. Nothing but the conviction that the abuse and misuse of the functions which nature destined only for the perpetuation of the race, is the cause of much of the suffering, almost peculiar to our own age and nation, could have induced me to bring this subject under the notice of the association. When that great thinker and philanthropist, Count Tolstoi, published a work intending to show the evils of sexual impurities, and the unhappiness caused by marital excesses, it is suppressed by our government; while the pruriency of Ouida and the filth of Theophile Gautier are allowed to circulate without let or hindrance.

The suppressed "The Kreutzer Sonata," bears about the same relation to "Mademoiselle de Maupin," in the magnitude of its tendencies to excite salaciousness, which a summer zephyr bears to the destructive tornado.

It would seem, therefore, that instruction in this delicate matter, so important to the health and happiness of the people, must come only from the family physician. I fear it too often happens that a false delicacy, or a praiseworthy modesty, keeps too many of us from giving proper instructions to our patients.

#### DISCUSSION.

DR. HILL: *Mr. President*,—I consider this paper of as much value to the physicians who attend this meeting as any that has been presented to this society, and in this age of brain-workers and over brain-work, it is a

very practical subject ; a subject to which a physician's attention is called almost every day in his practice. One important phase of the subject which the doctor did not bring out, and which I always regard as closely associated with neurasthenia and hyperæmia of the brain, is that of sleeplessness. Of course, there are two conditions which cause neurasthenia—I might say three. Three conditions which will cause weakness of the nerves. The first is overwork ; excessive use of the nervous system, mind, brain. The second is improper nourishment for the nervous system, and the third is insufficient rest for the nervous system. I think works on physiology teach that sleep is fully as important for human beings as food, and I think that it should be borne in mind by all brain-workers, that they need rest for their brains and their nerves, just as much as they need food for their bodies and their nerves.

DR. SMALL: *Mr. President*,—There are a few symptoms that the doctor did not bring out as forcibly as I think necessary, and that is, that it is passive hyperæmia and not active hyperæmia that causes this trouble, and that passive hyperæmia and æmia cause practically the same thing, a lack of arterial blood to the brain centers. And I am at a loss to see the relation of cause and effect between suppressed menstruation and neurasthenia.

DR. HORNIBROOK: *Mr. President*,—It is only necessary for me to say that I was not writing a disquisition on neurasthenia. I was epitomizing, as nearly as possible, the symptoms of neurasthenia, and giving certain cases as illustrations of peculiar features of it. In regard to sleeplessness, I enumerated that as among the symptoms. The case I thought would be of most interest, considered with the views which I took, did not have sleeplessness as one of the symptoms. In regard to not making the distinction between passive and active cerebral hyperæmia, in quoting from Prof. Ranney I gave his statement that constant work is one of the most potent factors in producing *passive* cerebral hyperæmia. And as to the suppression of the menses being a cause of the symptoms, I would say that I only selected one case. I selected that because it was an excellent representation of the fact which I had often observed, that women with irregular menstrual flow often showed the symptoms of neurasthenia. I mean full-blooded women. I found that restoration of the flow relieved the symptoms. It may be that I have not sufficient data; I only gave one case; it is not the twentieth part of the cases I might have given, but I could not have the time to give them all. Whether the gentleman sees the connection I am not prepared to say. I am not prepared to say there is a connection; I can only say that I have observed these symptoms: I have relieved the irregularity, restored the flow to its normal condition, and the patient has got well. It is not always safe to argue from results, but I found that to be the case and I give it for what it is worth, not to establish any particular theory.

## THE PROPER CARE OF THE CHRONIC INSANE.

DR. F. M'CLELLAND, *Cedar Rapids.*

I shall make no attempt in this paper to treat the subject under consideration from a scientific point of view, but simply present a few commonplace every-day thoughts suggested by my observations among the insane of our hospitals. I prefer the word "chronic" to "incurable," for the reason that it is a very grave question as to how far we are warranted in pronouncing a case incurable. Alienists of wide experience tell us that the most hopeless cases may make good recoveries, while many of the most promising are never fully restored.

For the purpose of this paper I shall not make any special classification other than that of the chronic insane, grouping under this general head persons whose recovery is slow, whose improvement is not promising or whose ultimate cure is seriously questioned, including epileptics. From this general classification I think there might be a large number selected who could be properly cared for in their homes; persons in such mental and physical condition as to require neither the treatment nor care of the hospital; tractable and harmless, requiring only a little additional watchfulness and care on the part of relatives and friends. But to do this the conditions must be favorable. In these conditions I would include willingness and financial ability on the part of the relatives or friends of the patients. Unfortunately for this class of patients, both these requisites are often lacking, the former, I fear, more frequently than the latter.

It is a lamentable fact that children in good pecuniary circumstances, made so by the life-labors of their parents, send father or mother, or both, to hospitals for the insane, when disturbance of the mind incident to old age renders them unable to work, querulous, fault-finding or exacting; and ever after refuse to have them at home, turning a deaf ear to the most pathetic appeals, and hard hearts to the most cogent reasons for their return. They are, as a matter of fact, insane, but their insanity is of a mild type; they are harmless; they are simply somewhat troublesome; require additional care and attention; occupying time, perhaps, which the members of the household think can be more profitably employed in work or pleasure. It is simply inconvenient to have them at home; they are in the way, and they are sent to the hospital as a matter of convenience. There are too many such cases in our hospitals to-day; and could you hear the sorrowful tales, the pathetic appeals to be sent home, heard by those who have oversight of them, or read the cold-blooded, heartless letters in reply to requests to children and other relatives to take their friends home and care for them, you would not be surprised that it has become a serious question in the minds of those conversant with these things, how far our laws regulating the commitment and retention of this class of insane in our hospitals are responsible for the inhumanity thus perpetrated, and to seriously ask if it is

not the duty of our law-makers to enact laws compelling children and other near relatives to care for their friends in the condition under consideration, when they are amply able and favorably situated to do so, and to hold them strictly responsible for their proper care, and to make it a criminal offense to neglect or maltreat them.

There are numbers of patients in our hospitals for the insane belonging to this type, who could be and should be cared for at home, if there were any way to compel it. True, they might not be better cared for than they are in our hospitals, but their declining years would be happier for the influence of home surroundings and the care of children and friends. There may be, however, exceptions to this recommendation, prominent among which would be the homes in which there are young children. Children are imitators, are likely to absorb the spirit of those with whom they are associated. Hence, where adults have lost their self-control to such a degree as to render them constantly cross and unkind in word, disgusting or offensive in actions, profane or with marked insane delusions, their influence upon children might prove harmful. In this connection, I would suggest that epileptics should not be permitted to attend our public schools, nor kept in homes where there are other young children.

Permit me to give my own personal experience in illustration of this point. When a boy I attended school where there was a scholar afflicted with epilepsy. He had frequent, terrible seizures in the school-room and on the grounds. I became so nervously affected on witnessing them that I was in a constant tremor when he was present; could not study when he was in the school-room. The impressions thus made remain, to a marked degree, to this day. I can visit the wards of our hospitals in which are the most disturbed patients, without a thought of fear or feeling of nervousness; but when I enter an epileptic ward that same feeling of fifty years ago in that school-room, comes over me. I am nervous and uneasy all the time I am in the ward, and if a patient has a fit, it frightens and shocks me more than I would be if assailed by the most violent patient in the institution. This is my individual experience in this matter, and I do not think my case is an exception among the pupils of that school at that time, nor that it will prove an exception among scholars who have been or may be similarly circumstanced. I believe this subject worthy of the consideration of physicians generally.

It must be remembered in considering this subject, that the chronic insane are not all, nor, indeed, any large portion of them, imbeciles; that they are not, as a rule, persons having no conception of personal comforts, no regard for pleasing surroundings, nor care for pleasant, reasonable and sensible conditions, no appreciation of kindly treatment, and no interest in the affairs of life. On the contrary, a large number of them are as particular about their surroundings, choice of their associates, fastidious as to

their persons, neat, clean, and as circumspect in their words and actions as though their minds were not disturbed. Many of them are from the higher walks in life, refined in taste and sentiment, educated and cultured, while those who are not have the same claims upon humanity, the same rights to full charity in all that pertains to their proper care as those who are ; hence we can make no distinctions, no radical differences in our endeavors to give to this class the proper care their helpless condition demands.

One, and indeed a very important consideration in the care of the chronic insane, is to provide means in the institutions founded for their benefit for proper classification. This is essential in the care of this class of unfortunates. There should be ample provisions made for the complete separation of the noisy from the quiet, the cleanly from the uncleanly, the orderly from the disorderly, the profane from the religious—in a word, a classification which will permit of the grouping of the different types, and thus secure the means of carrying out different methods necessary under different conditions of body and mind ; methods which might be applicable under certain conditions, but inapplicable under others. This necessarily presupposes ample room, favorably situated, conveniently arranged and appropriately divided ; provisions which are sadly lacking in our own state. In this connection I am of the opinion that the cottage system has many advantages. Cottages capable of accommodating not less than fifty nor more than one hundred patients, I think preferable to those with a greater or less capacity. One advantage of this plan is its cheapness, especially in the matter of attendants. It also affords a better classification, a more apparent freedom from restraint than is secured on the ward plan, especially where the wards in the general or main building are crowded, as they too often are, a condition which cannot be avoided with the capacity for caring for the insane in Iowa to-day.

Most of the chronic cases like the cottage plan. I have rarely heard a patient moved from the wards to the cottages at Independence complain of the change. On the contrary, they, as a rule, are pleased with it. I cannot better illustrate this than by recalling the words of a patient who had been moved from the wards to the cottage. On inquiring as to how he liked the change he replied : "Oh I like it better here, I feel much more at home ; there is more fun among the boys." They believe they are being cured ; they never lose hope of ultimate recovery ; they are always getting better ; always nearing the time when they will return to their homes and friends, fully recovered. To encourage this hope is an important factor in caring for the chronic insane ; to discourage it by putting them in a place, or surrounding them with conditions which would lead them to think they are incurable is to, at least, embitter their lives, if not to do them positive harm and render their recovery impossible. Hope is the mainspring and comfort in all our lives.

The next important step is to secure attendants adapted to the care of the insane. They should be persons of even tempers, sunny dispositions, and in possession of versatility of genius and a fund of resources for entertaining, amusing, controlling, aiding and directing those in their charge. They must have themselves in perfect control ; be able to command their tempers under all circumstances, to be firm without harshness, positive without unkindness.

An important factor in the care of the chronic insane, is to aid them in self-control. They should be treated, as far as possible, as sane persons; to remove, as far as possible, the idea that they are considered by those in charge as insane. To this end they are furnished rational amusements, given employment such as will call forth an exercise of judgment, or, at least, to so engage their attention as to keep the mind from feeding upon itself. The chronic insane in our hospitals are, as a rule, in much better condition, mentally and physically, during the summer months, when they can exercise and be employed out of doors, than in winter, when compelled to remain indoors without employment ; hence the question of furnishing constant employment and the means of daily out-door exercise to this class of the insane is an important one, and just how far it is practicable to introduce productive industries into places provided for their care is worthy of careful consideration.

In this matter of teaching self-control, wholesome discipline is sometimes necessary. A patient on parole, having the privileges of the grounds, or wider, who takes advantage of his or her liberty and abuses the privileges granted, if deprived of them for a time, is not likely to soon again violate the confidence imposed. A patient in a front or convalescent ward who becomes noisy, quarrelsome or inconsiderate of the rights and comforts of his or her associates, is often reformed, or at least greatly aided in self-control, by being put in a "back ward," to associate for a time with those who have entirely lost the power of self-control.

A serious problem in the care of this class of unfortunates is that of the propriety of sending home the milder cases whose whole thought and constant importunity is to get out of the hospital and to their homes. It is a serious question whether patients in this condition are better in or out of the hospital ; whether more harm than good is done by keeping them under the restraint of the institution. True, there are many cases where the experiment has failed ; where the patients, having made decided improvement in the hospital, grew worse on returning home and had to be returned ; but the fact that even a few, sent home under seemingly unfavorable conditions, have improved and become self-sustaining, warrants the belief that the experiment is worth trying oftener than it is.

And while this is frequently done, it would be done much oftener if there were any pecuniary provisions made for so doing. The officers of our

hospitals have no fund to defray the expense of sending patients home on a visit or on trial. The patients have no money to meet the expense and the friends are not able, or willing, to pay it. In many instances where no permanent benefit is derived it would make the patients more contented on their return to the hospital. Indeed some, most urgent to go home, return voluntarily. Having been permitted to try the experiment they realize their condition and prefer hospital life to home life.

But aside from the experiment of caring for the chronic insane at home, as indicated, under favorable conditions, there is no proper way to do so outside of hospitals designed especially for their care.

This experiment has been thoroughly tested, notably by New York, and proved such a miserable failure that a return to the state hospital plan was imperatively demanded by the people and acceded to by the legislature. The state hospital plan seems to be the plan best adapted to securing the best results ; in fact the only practicable plan.

Classification is an all-important factor in the care and treatment of the insane, and to this end a hospital with a capacity of *one thousand* patients should not have a population at any time of over *eight hundred*. Should the demand exceed this, and should the building become crowded, cottages for the chronic insane should be added, or a new hospital built elsewhere.

But there is another plan for caring for the chronic insane which has its advocates, and which is too often adopted. I refer to caring for them in the county poor-house. And, I regret to say, this plan has secured a seeming sanction in Iowa from the crowded condition of our hospitals, making it absolutely necessary to send many of the chronic insane back to the counties from which they came, in order to make room for more hopeful or unmanageable cases. The poor-house plan is one which cannot and will not secure the endorsement of any humane person, who has had experience in caring for the insane, or opportunities for learning their peculiarities, their wants, and their conditions of mind and body. The plan is unwise, impracticable, and, in too many instances, inhuman. The only thing which can be urged in its favor is its cheapness.

Do you say this is extravagantly and barbarously put? I could give you examples of the caring for the chronic insane in our poor-houses, and the horrible results of this care, which would occupy the full time allotted to this paper, but one or two instances must suffice. I once saw an old lady, not less than 75 years of age, brought to one of our hospitals for the insane, ragged, filthy, and maniacal. She had been subject to the tender mercies of a county poor-house for years ; confined in a small room, with straw on the floor for a bed. Her attendants were afraid to approach her, and her food was pushed to her through a hole in the partition of the room. When she reached the hospital she was more like a raving wild beast than a human being. She was taken in charge by a lady attendant, led to her room,

thoroughly bathed, clad in clean clothes, and placed in a clean, comfortable bed. She slept peacefully during the night, and the next morning was quiet and orderly. I saw her at intervals for two years after she was brought to the hospital, and she was cleanly in her habits, kindly in disposition, with no disposition to injure any one, although badly demented, up to the time of her death.

I have seen insane persons brought from poor-houses to the hospitals in irons, who, upon being released from restraint, surrounded by the homelike influences of the hospitals and controlled by kindness, soon became quiet, and who proved to be patients who gave no trouble. I have seen the trunks and bundles and boxes containing the belongings of patients sent from poor houses to the hospitals opened and the clothing found so filthy, so full of vermin and so disgustingly offensive that everything had to be burned.

I do not say that this condition is always the result of inhumanity on the part of hirelings of these institutions. I prefer to believe that in a majority of instances they do not know better. They have had no experience in the care of the insane, have no tact nor judgment in their treatment of these unfortunates, and persons without these requirements are, as a rule, afraid of insane people, however slight may be the insanity, and they are controlled in their treatment of them by this fear.

Another consideration strongly adverse to placing the chronic insane in poor-houses is that their manhood is degraded and their finer sensibilities outraged. It must be remembered that the army of insane persons is not largely recruited from the pauper classes; but, on the contrary, they come from the laboring, frugal, industrious ranks of our population. They are, for the most part, men and women who have been taxing body and mind to secure homes and provide for their families, whose minds and bodies have broken down under the continuous strain. Is it, then, right, is it justice, is it humane in the sight of God or man to pauperize any insane person? It is an insult to our boasted humanity, not to say a libel on our accredited Christianity, to make any distinctions in the care of persons bereft of reason on account of pecuniary conditions or social relations. It is a burning shame, and living disgrace to the state of Iowa, or any other state, to have a single insane person in a county poor-house. The physicians of the state have opportunities for doing valiant service in the cause of humanity, and especially in enlightening the public on the proper care of the chronic insane. They should use their influence to prevent the chronic insane of their localities being sent to the poor-houses, to see that those who are there are humanely treated, to aid in every possible way the increasing of the accommodations in our state institutions for this class of unfortunates, and when this is secured, see that not a single insane person remains in the poor-houses of their respective counties. Let there be a united and



continuous effort on part of the physicians of Iowa to influence legislation in behalf of the institutions provided for the care of the insane, to secure all necessary room and accommodations for their proper care, in every possible way to ameliorate their condition and add to their comfort, for doing which the physician has the means and opportunities possessed by no other profession.

## DISCUSSION.

DR. GILMAN : *Mr. President*,—There is just one point in connection with this paper which I would like to say a word upon, as the doctor, perhaps, has reflected somewhat upon the superintendent of the hospitals, in regard to the retaining of a certain class of patients who might possibly be cared for outside. I recognize that there is a small number of persons, aged, demented individuals, who might be properly cared for by their relatives at home, and whom I have considered it was a hardship that they should be kept in the hospitals, when there was accommodation for them and proper means of caring for them among their friends. But the doctor visits us for two or three days and goes away, and, perhaps, does not return again for a month or two, or three, and is not compelled to face the music as we are in the matter of the returning of any of these patients to their homes. There is a large class of the chronic insane who appear in the hospitals, as they are observed by visitors, from time to time, who are very quiet in their demeanor, who conduct themselves properly, who converse quite intelligently, and get along very comfortably while under the restraint of the hospital, but when returned to their homes, or counties from which they came, they become a terror to the neighborhood, and we have not only their own friends, but the whole neighborhood and community aroused and writing us letters, and finding fault with us because they are not retained in the hospital. So that we have a side of this question to meet which he is not called upon to meet. There is another class, and a very large class of the insane, who, while under the control and the restraints of the hospital, are orderly and give no special trouble, and yet who have marked delusions when with their families or with their friends, and become a terror to the community and a hardship to the family, and it requires a great deal of care and forethought, and a great deal of wisdom, to decide upon the individual that is absolutely safe, if insane, when returned to his own family and without proper restraint. I recognize the fact that the doctor has suggested, that there are some cold-hearted children, or children with no hearts, who are anxious to get rid of their relatives, their parents, perhaps, and their friends, and place them upon the public as a public charge in order to get rid of the responsibility, but I believe this applies to only a small fraction of the chronic insane.

## FOUR CASES OF PUERPERAL INSANITY.

NANCY M. HILL, M. D., *Dubuque.*

*Case 1.*—Mrs. Y.; brunette; 38 years old; family history good; pregnant about six months. Her five children had just recovered from scarlet fever; had been dangerously ill, off and on, for the past eight weeks. She had taken the sole care of them; had not been undressed at night, or gone to bed during this time. Slept very little. Went to the table if she had time to eat her meals, but she had evidently gone without her food a good deal of the time, and now when her children were better, she found herself sick. On my first visit I found her anæmic, skin hot and dry, pupils dilated. She was very much excited. She had many strange delusions. She thought she had hydrophobia, and was going to die. She was thirsty all the time; had a dread of water; could not even wash her face in it. She could not keep still; was on the go all the time, walking up and down the room; walked about the house from morning till night, and a good part of the night, and only stopped when obliged to do so from exhaustion. She would not stop walking long enough for me to count her pulse. She was irritable and cross. She declared she would not eat, or take medicine, so I compromised with her. Knowing her great thirst I promised that if she would drink all I asked her to drink, she would not be asked to eat or take medicine, till I was ready. So I ordered eight eggs and two quarts of milk daily; taking two raw eggs well beaten up in a pint of milk at every meal, and at bed-time. She took it readily and this diet was kept up before confinement. She improved every way, but mentally she was not much better.

The last month of pregnancy she complained of headache and was more melancholy than ever before. About six hours before the birth of her child she was so furious and uncontrollable that they sent for me. I found her holding her head in her hands, now and then, as the pain in her head came and went. She had some fever besides. With the greatest difficulty I examined her. It took four to hold her, found labor had begun, os dilating, vertex presenting. I then let her do as she pleased; choose her own positions, and we stayed in the dark with her, as the light seemed to cause more pain in her head, until about fifteen minutes before the baby came; then we lit a lamp and tried to undress her. She refused to be undressed or go to bed, and kept blowing out the lamp. Said she was not going to be sick now. So we had to put her to bed by force. We made haste very slowly, but we just had her in position for the last pain, she held the chloroform handkerchief herself, for now, she felt for the first time that night, that she was in labor. As soon as she heard her child cry, her reason returned. She asked what it was, was pleased to know she had a ten-pound son, and was quiet afterward. She did well, made a good recovery; has never been pregnant since.

*Case 2.*—Mrs. T.; primipara; parents both living; family history good;

21 years old; labor had been normal; no lacerations; patient did well until the third night, when she did not sleep. The fourth morning found temperature 102°, pulse 120. Patient restless, worried; refused to nurse her child. Gave her at once 20 grains of chloral with 15 grains of bromide. Returned in two hours and found her no better; gave her the same dose, but it did no good. After waiting two hours, gave 30 grains of chloral and stayed to watch her. By noon she was worse; violently insane.

Dr. Watson was called in counsel. There was no pain on pressure over abdomen. Lochia normal. Different medicines were used, but did not have the desired effect. The case now ran on till the seventh day, when the patient said to me, at the morning visit: "If you would give me a laudanum bottle I would drink enough to make me sleep." Soon as I saw her husband alone I told him she was worse, and talked about drinking out of a laudanum bottle. To my surprise, he said: "My wife must be better, for that is the first sane remark she has made for three days." Then he told me for the first time, his wife was an opium-eater. That he had bought laudanum for her by the pint before her confinement, that she could not sleep without it, and she had always drunk it from the bottle. He supposed her bottle was empty now.

I called the nurse, but she knew nothing about a laudanum bottle. We hunted and found the empty bottle, hid under some clothing in a corner of the room. Sent at once for Dr. Watson. We told her husband we should have known of this opium habit at first, but we would do what we could now. Injected one-half a grain of morphia, and she slept an hour for the first time for four days. We visited her together every two hours till 3 o'clock in the afternoon, found her then resting well, waking up now and then during the afternoon; then we omitted the medicine till evening. At 7 o'clock the same evening we found her temperature 106°, pulse 40, weak. She died in an hour. Her husband cried out, "I have killed her—I have killed her." We did not understand him or understand why, when our patient's symptoms should have been so favorable at 3 P. M. she should have died about five hours later.

The nurse called upon me four years afterward and I asked her again, What did really happen at Mr. T.'s house the day Mrs. T. died? She then confessed that after dinner Mr. T. went to the drug store, that she was sent down stairs to take care of the baby and told to stay, that they would call her when wanted. That when she went up at 5 o'clock she could not rouse her patient, but her husband said she was all right and doing well. Then she found the laudanum bottle had been refilled and put back in the same corner we had found it in, and it looked as if "a considerable" had been taken out.

*Case 3.*—Mrs. G.; primipara; 23 years old; family history good; always well and strong; was troubled with nausea a large part of the time before

the birth of child. Labor normal. Everything seemed to go well except she appeared rather hysterical at times, but as she had been subject to hysteria we did not heed it much until the eighth day, when she refused to nurse her baby and wanted to throw it out the window. She would lie in bed no longer; was up and around the room. Her milk dried up. She refused to eat; imagined she was being poisoned. We forced her to take food. Gave 30 grains of chloral by enema every morning and night and secured sleep that way. She was violent at times; would have killed her baby could she have found it. It had to be carried away to a neighbor's for safety. Her delusions lasted about six weeks and she made a good recovery. Two years later she was confined again and did well; nothing abnormal about the case.

*Case 4.*—Mrs. S.; 26 years old; primipara; family history good, except she has a sister that is insane. Before birth of child had symptoms of eclampsia, but they were averted with tonics, anodynes and saline cathartics. When labor began temperature was 100.5°, pulse 102. Labor was normal; lasted about ten hours. I was beginning to congratulate myself that all was over and well, when half an hour after the child was born, patient began to sigh and say she was faint and could not see. Found the uterus, which had contracted, was relaxing and patient was losing considerable blood. She had had a drachm of Squibb's Fluid Extract of Ergot after birth of child and before placenta was removed, and good contractions followed. But now gave one-half teaspoonful more of ergot, and held the uterus with my hands; the instant I would relax my hold it softened and enlarged. Repeated the dose half an hour later with no permanent results, and fearing my hands might fail me, I requested her husband to call another physician to help me; also to ask him to bring some ergot, as I had lost all confidence in mine. Dr. McCluer came; gave his ergot with no better results. Then a drachm of ergot was injected over the uterus by hypodermic syringe, and that did some good; but not until the baby was four hours old could the hands be removed from the uterus with safety to the mother.

She had lost considerable blood, but as she had been full-blooded we thought she would stand it, and she might still have done so, but her crazy sister came to her room and frightened her about ten hours after birth of child. That night she did not sleep well, would doze off, but wake up suddenly with a start, thinking her sister had taken her baby. She then went on from bad to worse until the fifth day, when she was insane. She turned against everyone but me, and would let me feed her and take her anodynes only from me. So I visited her three times daily, gave her chloral and the bromide. Let the baby nurse twice daily and so retained her milk. In three months' time she had fully recovered her reason. Has been confined since; was all right during the puerperium and has been so since.

## MORBID LONGINGS, THEIR CAUSES AND RESULTS.

F. S. THOMAS, M. D., *Council Bluffs*.

In opening this paper, I desire to quote from another :

"In a perfectly healthy man all his desires and cravings can be safely gratified in some way or at sometime; none of them need absolute inhibition; all are good, and do good to the body and the mind through their gratification. Reason and experience, ancestral and personal, come in at every point to regulate the gratification of desire, and *will* carries out the conclusions of reason and the lessons of experience at every turn."

It must be acknowledged that under the restrictions of knowledge and experience and the limitations of law our desires give happiness; if they lead us to danger and death, it is conclusive that there is disease or an abnormality in the organism. The craving that leads its possessor to harm we term a *morbid longing*.

Before considering the causes that produce morbid longings, let us consider the seat of these cravings or longings; undoubtedly the most subtle cravings originate in the brain. We are taught that the most essential quality of a nerve-cell is its instability; that were it not so, peripheral impressions could not be received, nor would it be able to liberate its energy rightly in mental or motor impulses.

Where a morbid condition exists, however, the stability of the nerve-cell prevents its being receptive of such impressions and able to liberate its energy rightly.

In this morbid condition there is no necessity of a disturbance of function in the lower centres, the Sympathetic or Visceral Ganglia, or in the organs of the body or their functions. According to good authority we can go further and say: "That such intense and subtle cravings necessarily arise, not in the brain as a whole, but in its very highest centres."

When there is inheritance from an ancestry whose brains have been subjected to undue strain and excitement or to the poison of opium, alcohol or syphilis, we generally find the existence of an unphysiological condition. Dr. Clouston says: "If such a quality resides in a motor centre, we are quite apt to have convulsions, chorea, hysteria or exaggerated reflexes."

Heredity undoubtedly plays a most important role in making up the causes of the morbid longings.

Vicious habits in the young, over-indulgence either in eating or drinking, association with the vulgar and depraved, all fasten upon the youthful brain morbid longings.

If from childhood upward, the possessor of a keenly-working brain has been fed upon a stimulating diet, and, when exhausted, given stimulating drink, such a brain too soon develops an affinity for them, and in fact for them alone, and will not be satisfied with less. How much this effect is increased if there is hereditary predisposition toward the neuroses. Who has not felt the effects of the nerve stimulants so common upon many tables,

viz., tea, coffee and cocoa? How keen is our memory that these so-called harmless beverages have dissipated the feeling of exhaustion, setting up a craving that has become a dominant impulse in many cases. How much more immediate and intense in their effects upon the brain are alcohol, opium and cocaine? Do they not seem more restorative, and is not the joy greater, and the longing begotten of habit far more masterful? Dr. Clouston says: "That the existence of a craving indicates a need of some sort, but it may not be the thing craved that is needed." The physiologist will tell you, that for the purposes of normal digestion, many things will be necessary; the glands that secrete gastric juice must be healthy, the coats of the stomach, and the abdominal sympathetic must be sound. If he should go farther, to the cortex of the brain, he would tell you that in these higher centres, where the stomach and the digestive function are represented, lie the feelings and ideas that relate to alimentation, and through which conscious craving is established and satisfaction is felt when craving is satisfied with suitable food.

If the direct gratification of some desire would injure the organism in its own life or that of its descendants, then we must regard it a pathological craving.

In the normal brain, where control has not been paralyzed by diseased cravings, a controlling force exists. As all nervous and mental functions must have an encephalic basis, so inhibition must be more than a moral quality. No doubt exists that control is the highest function of nerve substance. In all systems and classifications of mind, volition is placed at the head of the faculties.

There can be no doubt that many have morbid longings whose control is normal and whose environment is such that these cravings are kept in check. Society rests on this fact.

In addition to what I have said in this article with reference to the causes of morbid longings, is it necessary to add, that the indiscriminate use of narcotics and hypnotics, the numberless officinal and proprietary preparations that are continually in the hands of the masses, together with the alcoholic beverages that are flooding the world, are adding, continually, faggots to the fire. What are the effects? Ask the vagrant that calls at your home for food; the defendant in a suit for divorce; the prisoner in a cell at the jail; the inmate of the insane asylum. If they will not tell you, they will furnish you an object lesson of those whose control has been paralyzed by morbid longings, either hereditary or acquired.

When will the world realize that the desire to do evil has a localization in the brain of man, instead of being an evil spirit driving him to acts of violence or shame; and that the control exercised by the virtuous and good is a mental quality, an inherited quality, that has been vouchsafed to us as a result of the holy teachings of the gentle Nazarene, while dwelling here on earth?

## EDITORIAL.

## FAIR PLAY FOR THE GERMS.

(CONTINUED.)

OUR first contention, that the identity of human and animal diseases is highly questionable, is one which seems hardly sufficiently considered in discussing this subject. An inoculation with virus is made, one or more of the symptoms of the original disease, a diarrhoea after an Eberth culture, a membranous exudate after a Loeffler's, for instance, appear in the guinea-pigs used, and we at once take it for granted that the original human disease has been transmitted in all its perfection, forgetting that most of our disease-processes are pathological accomplishments of a very high order, nothing to be specially proud of, 'tis true, but requiring for their development a most elaborate and ingenious array of controlling, balancing and sympathetic nerve-mechanisms. To what extent these are developed, or even present in the lower animals, we are almost altogether in the dark. All that we are sure of, is that some, at least, are absent. For instance, it is highly questionable whether any of the lower vertebrates are capable of that systemic conflagration of their protoplasm known as "fever," on account of the lack of a thermo-taxic mechanism. The facts that rabbits can be fed upon belladonna leaves, fowls upon crude opium, pigeons upon atropia, up to eight or ten grains, without danger to life, and the singular immunity possessed by hogs to rattlesnake-poison, badgers to prussic acid (ten times the fatal dose for an adult man having no effect whatever upon them), and wolves to arsenic, are but a few of the data suggestive of how little we actually know of the controlling vital processes of these cousins of ours, and how slow we ought to be in assuming them identical with our own.

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WHEN this branch of evidence was first introduced, the mere appearance after inoculation of a single symptom similar to that associated with the virus in the human organism, was regarded as conclusive; but there has been a remarkable change of view, and now the balance of opinion is against the possibility

of the production of cholera, typhoid, scarlet fever or diphtheria by inoculation. This practically dismisses the case on this count against the bulk of my clients who prefer human hosts, and leaves the Tubercle Bacillus standing alone in the dock.

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I AM willing to admit that the accusation holds against the virus or germs of originally animal diseases, such as glanders and anthrax, which naturally are capable of being transplanted back into their native soil. But the mischief done by them is of quite a different and far simpler character, a mere physical invasion of the tissues by swarms of bacteria, which bodily obstruct the vital processes or devour the nutrient fluids, much as ants or maggots might do.

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Now, as to the tubercle bacillus, there is no question that the inoculation with or ingestion of the sputa of tuberculous human beings, is frequently followed by a local or general process of *anatomically* tubercular degeneration of the tissues of the animals experimented upon, but we would respectfully submit that this by no means proves that tuberculosis or "consumption," as such, has been transmitted. Indeed, there are certain well-known facts which appear to us to militate decidedly against any such conclusion. One is, that animals kept in captivity are peculiarly liable to this disease, apart from all question of infection; indeed it is the commonest "natural" cause of death among them. Another, that injections with *any sort* of putrefying material, or even with inorganic substances that are chemically irritating, are also capable of setting up this process, and last, but not least, the disastrous collapse of the magnificent, almost millennial, creature of Koch's great intellect.

The only flaw in its wondrous structure was the fact, that while tuberculin would unquestionably check and "cure" the "transmitted" disease in guinea-pigs and rabbits, it was unable to so affect the supposed original process in the human subject. The lymph was all that was claimed for it in vigor and efficiency, but the diseases were in some way different, *hinc illae lachrymae*.

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OUR second contention, in reference to the vigor of the animals



used, is one which seems to have been almost ignored in the consideration of this question. From obvious practical reasons of convenience, etc., these have principally been rabbits and guinea-pigs, the born "consumptives" of the whole rodent family. Anyone who has had experience in the care of these little animals, is aware of the astonishingly low grade of vitality possessed by them. A mere tap or pinch will kill them; they can be literally, frightened to death. A single over-feeding with succulent vegetables, the slightest dampness of the floor of their cages, is enough to promptly determine an attack of one of the various forms of their favorite disease, graphically termed by fanciers "the rot." Although they may live a long time under favorable circumstances, or even unfavorable ones, yet, generally, the slightest irritant upsets their equilibrium, and once sick they seldom recover. In fact, if you were to search the whole animal kingdom through for an illustration of the "consumptive diathesis," you could find none half so appropriate as a white rabbit. Is it any wonder that when organisms of this type are dosed with appreciable amounts of some putrid, fermenting or excrementitious material, that morbid disturbances promptly follow? If the morbid matter attacks, or its excretion is attempted by the intestinal tract, we have diarrhoea, tympanites, etc., "typhoid fever," or "acute tuberculous enteritis," as the case may be. If the burden falls upon the respiratory passages, "pneumonia" or "phthisis pulmonalis" is developed, according to the rapidity of the process. If the mesoblastic tissues suffer, we have septicæmia or pyæmia.

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FORTUNATELY we have positive evidence to offer on this point, as well as negative objections. During the last three months the range of experiment has been widened, and another member of the rodent family, the rat, selected as a victim. To the astonishment of bacteria-breeders, he is found to be wholly "immune." He absolutely refuses to be "infected" or "inoculated," not only with human *materies morbi*, but even with that fiery animal poison, the anthrax virus. But what else was to be expected from the evident physical differences between the tough, wiry, active rat, and the pulpy, flabby, indolent rabbit. The greediest germ can't feed on tissues that are really *alive*.

IN the graminivorous family we find the same results. The feeble, amiable, in-bred Jersey is fairly swarming with tubercle bacilli, and our veterinarian brothers are almost shouting themselves hoarse in their enthusiasm over having discovered in her the chief and mightiest cause of the dread scourge—consumption; while the sturdy, active and pugnacious goat is not only entirely free from, but utterly refuses to be inoculated with them. The cooped-up and languid domestic fowl is highly susceptible to anthrax inoculations, the free and roving pigeon, the champion long-distance athlete and acrobat of the feathered tribes, is immune; although as some extremely suggestive experiments by Cattani have shown, he can be *starved* into “susceptibility,” and cured, after the disease has been contracted, by generous feeding. Rats may also be rendered susceptible to anthrax by simply starving or poisoning them. Draw a line between the susceptible and the immune, and we have on the one side the rabbit, the guinea-pig, the Jersey, the fowl; on the other, the rat, the goat, the pigeon; the very antipodes of vigor and endurance. Comment is unnecessary; the division speaks for itself. And yet the proposition is seriously made that man, who, if given half a chance, is a better, sturdier animal than any of them, shall be inoculated with their blood, in order to confer upon him this mysterious immunity, instead of making him develop it for himself.

[To be continued.]

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## DEPARTMENT OF DISEASES OF ANIMALS.

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S. STEWART, M. D., D. V. M., EDITOR.

(Secretary Iowa State Veterinary Society.)

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### THE PRESIDENT'S ADDRESS.\*

DR. L. A. THOMAS, *Atlantic*.

Since the organization of scientific bodies such as this, it has invariably been the custom for the presiding officer to base the subject of his annual address upon matters of recent scientific research pertaining to the profession. But owing to the fact that the program for this meeting promises to supply ample material of this nature, I feel that I may be permitted to

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\* Delivered before the Iowa State Veterinary Medical Association, Des Moines, November 12, 1891.

deviate somewhat from the established precedent, calling your attention to the growing necessities for professional advancement, and endeavor to point out some of the means by which we may more effectually promote the welfare of our patrons and the laity in general, thus enabling them to appreciate in a correct manner the value of the veterinary profession, and to realize to what a great extent they are reliant upon this profession for the preservation of human health from a sanitary standpoint. Having this aim in view we should at this meeting discuss the necessity of stricter sanitary legislation and formulate such resolutions as would tend to remedy the present deficiencies in our state laws. For some time past it has become evident that some of the sanitary laws of this state require revising and amending in such a manner as to keep pace with the rapid and important advances made in medical science. It is true that in many respects this has already been accomplished through the increasing efforts of our state board of health, and that the laws now in existence have been carried out to their full intent, notwithstanding the repeated and almost insurmountable obstacles with which the board has had to contend. But in order that the members of the board of health, and those acting under them, may effectually cope with all and every class of unsanitary conditions, it is eminently necessary that such laws as have proved ineffectual should receive the earnest attention of our next legislature, and proper measures be taken to revise and amend such sections as are found inadequate or void of beneficial results.

At the present time there is a law in existence which is both absolutely worthless and detrimental to the public health, as well as being productive of an immense annual pecuniary loss to the live-stock industry of the whole state. I allude to chapter 79, laws of the twenty-first general assembly. At the time this law was passed the nature of hog cholera was not very well understood. Owing to this fact a most unfortunate provision was made, allowing the owner of animals which had died from the effects of the disease, to dispose of the carcasses either by burning or burying them to a depth of not less than thirty inches.

According to the more recent investigations it has been proved that the burying of cholera-hogs is a disastrous mistake, owing to the fact that the virus producing the disease increases in strength and severity through the medium of earthy matters, and that where hogs in this condition are allowed to be buried a center of disease is thereby established, the infective substance of which is brought to the surface through the workings of worms, rats and other species of vermin. As the only effectual method of destroying the germ of hog cholera is by fire, it is evident that no choice should be allowed, and the law should be explicit on this point.

Hog cholera is an infectious disease, the primary symptoms of which are often much varied and complicated. It is therefore advisable that the law

should provide stringent quarantine regulations, which should be maintained and carried out by the local boards of health under the direction of the state veterinarian, and that the carcasses of all animals which have died from the effects of the disease should be destroyed by fire, without removal from the premises.

One of the chief factors by which the disease has been spread to such an alarming extent is the existence of the so-called "dead-hog rendering establishments," one or more of which may be found in almost every county in the state; these under the present state of affairs are pest-houses of the most virulent type, and are owned and maintained for the most part by the lowest and most unscrupulous class of men, who appreciate the fact that the law, as it now stands, is unable to reach them and that they can therefore carry on their loathsome vocation with comparatively little, if any interruption.

It would also be advisable, for obvious reasons, to prohibit all traffic in dead animals (except such as are slaughtered) without a permit from the local board of health, whose duty it should be to satisfactorily ascertain that no contagious or infectious disease had existed, and that the carcase was not in an advanced stage of decomposition.

#### THE MEAT-INSPECTION LAW.

The time has now arrived when the people of the United States look upon the veterinarian as a sanitarian, and have resolved through the action of congress to avail themselves of the services of this rapidly advancing branch of science.

The first intimation of this intention is manifested by the enactment of a meat-inspection law, passed by the fifty-first congress of the United States.

This affords an immense field for scientific research; as well as being a most important sanitary precaution.

Under the provisions of this law, a thorough system of meat and dairy inspection may be instituted in every county in this state.

It is therefore preëminently the duty of all local boards of health to at once make such regulations as will effectually prevent the sale and consumption of diseased meats and dairy products, and thereby protect the public from this great source of danger to human life.

Let us therefore, as veterinarians and citizens of Iowa, at once assume the aggressive in this matter, joining hand in hand with our sister profession, constituting ourselves the champions and advocates of sanitary food regulations.

Let every member of this association avail himself of the daily opportunities afforded him within his own community to engender among his fellow-citizens a true knowledge and understanding of the dangers which

they continually incur from eating food which is unfit for human consumption.

Our efforts in this direction will be productive of much good to the masses, for when the people thoroughly understand how many of the diseases of the human family may be prevented by proper sanitary precautions, they will demand competent inspection of all food before it is placed upon the market.

For many years past the practice of veterinary science has been confined almost entirely to a class of persons having little or no education, and but few ideas or ambitions beyond those of the ordinary stable element. On account of this it can well be understood how public sentiment refused to grant the same prestige to the veterinarian (?) of earlier days as it did to members of other professions.

During later years these conditions have been very materially changed and the cloud of social and professional illiteracy enveloping veterinary science has been gradually but surely passing away, until to-day we stand before the world a body of professional scientists, ready and willing to assume all the responsibilities rightfully belonging to our domain, and demanding that society acknowledge our eligibility to meet within her halls and mingle on terms of equality with members of other reputable professions.

Both branches of medical science are to-day fairly launched upon the sea of investigation, striving to unravel the labyrinth, obscure and often-times mysterious, of the causation of disease, and as a result we see the time approaching when the science of Prophylaxis will, in a great measure, supersede the curative medication of to-day.

Our evidence of improved professional and social standing is, in the increasing recognition of the importance of our profession by the sister and other professions and learned societies; the calls that are now made for professional services and information by agricultural societies, colleges, and stock-breeders' associations, and the position in life occupied by many of our members who are known to be gentlemen of ability and social standing.

To the medical profession for material assistance in the past, we owe a debt of gratitude, and now that we are able to walk and act our part alone, as concerned with the well-being of the lower animals, we trust to be co-workers with them in the extensive field of comparative pathology; for in certain directions it is a well-recognised fact that the two professions are in touch, necessitating a combined work for the complete and accurate investigation of those diseases communicable from animals to man.

So much is this beginning to be understood and appreciated that at the late meeting of the international congress of hygiene and demography in

London, there was an official recognition of the veterinary profession, many veterinarians of note taking part in the discussions on tuberculosis.

May such be the course adopted here, when like diseases are under consideration in this country, for from such combination of forces great benefit will accrue to the public and both professions.

There are many matters of importance to be discussed at this meeting, foremost among which is the subject of state veterinary legislation.

The committee on legislation will report to you the result of their investigations, and if after due consideration of the same, the association is of the opinion that it will be for the best interests of the profession to at once take active steps in this matter, let us spare no pains to compile a bill such as will effectually prevent the impositions now practiced upon the public; at the same time making provisions which will be fair and just toward non-graduates, and enable the public to understand the difference between qualified and unqualified practitioners.

Gentlemen, allow me to touch briefly upon our pecuniary interests, which under the present circumstances are not unworthy of consideration.

We have now over 100 qualified veterinarians practicing in Iowa, many of whom have no fixed rates of fee to guide them in their charges; and in many localities, I am informed, professional services are rendered at prices in some instances barely remunerative. That seems unnecessary, and even productive of anything but beneficial results to the profession at large. There is ample work for all who are possessed of industry, ability and skill, at remunerative prices. Can we not, therefore, combine in such a manner as to have a uniform scale of fees throughout the state, thus serving the public fairly, and at the same time protecting our own interests?

In conclusion, gentlemen, allow me to thank you most sincerely for the honor conferred upon me, and for the courtesy shown me during my term of office as president of this justly prosperous association.

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#### THE STATE VETERINARY ASSOCIATION.

The session of the Iowa State Veterinary Medical Association, held in Des Moines November 12 and 13, was a highly profitable and successful meeting. Many subjects of special interest to the members of the association, and to the veterinary profession of the state, were freely discussed. A fee-bill, or scale of prices, to be charged for specified services, was adopted in the hope that a degree of uniformity of fees might obtain throughout the state and constitute evidence in cases of veterinary jurisprudence where charges are an issue.

It was determined that an effort should be made to secure such legislation as will properly protect the professional title of the veterinary graduates in the state, and to establish the legal standing of qualified veterinary

surgeons. A committee on legislation, consisting of Drs. L. B. Thomas, M. Stalker and J. E. Brown, was appointed to carry out the expressed wishes of the association.

A banquet terminated the exercises of the first day, which was conceded to be a most enjoyable and interesting section of the programme, by all participants.

On the second day several valuable papers were presented and discussed at considerable length. J. E. Brown's paper on Parturient Apoplexy was an exhaustive study of his subject. John McBurney's paper on the Treatment of Fistulous Tracts brought out the lessons to be learned from the experience of nearly all present. Dr. Edwards' presentation of Pneumonia in the Horse was crisp and attractive, and elicited many questions and comments, and Dr. Whitbeck's paper on the Microorganisms of Pus was a practical investigation into the etiology of fistulous withers and poll-evil, accompanied by many culture-tube specimens and drawings.

Several papers have already been promised for the meeting to be held next year, in Marshalltown, which makes it quite evident that a profitable session of this association will be held in 1892.

The officers for the ensuing year are : M. E. Johnson, Red Oak, President ; F. H. P. Johnson, Iowa City, First Vice President ; J. E. Brown, Oskaloosa, Second Vice President ; S. Stewart, South Omaha, Secretary.

The society was honored by the presence, during part of its session, of Dr. Woods Hutchinson, editor of the *VIS MEDICATRIX* ; Editor Wallace, of the *Homestead* ; President Beardshear, of the Agricultural College ; Governor Boies, and others.

#### NOTES.

SANITARY SCIENCE proved an engrossing theme for discussion by the gathering of veterinarians at Des Moines. From the interest taken in this subject by all present, it is quite evident the veterinarians of this state are alive to the importance of this field of labor and research, and will aid in this good work whenever opportunity affords. Health-officers or boards of health can always feel confident of receiving the hearty coöperation of any veterinarian within their jurisdiction.

THE notion that the cattle-tick is an active agent in the transmission of Texas fever from one kine to another is rapidly gaining adherents. Dr. F. S. Billings, of Nebraska, announces that he successfully inoculated Nebraska cattle with the blood taken from ticks sent to him from Mississippi by Dr. T. S. Butler. This calls up the idea again that many diseases may be communicated from one individual to another by flies, mosquitos, and other insects.

GOVERNOR BOIES manifested his interest in veterinary science and its

relation to the state by his presence at the recent session of the Iowa State Veterinary Medical Association.

THE U. S. VETERINARY MEDICAL ASSOCIATION, during the meeting held in Washington, D. C., spent much time discussing methods of elevating the standard of veterinary medical education in this country, and as an expression of the prevailing opinion of the association, a member offered for consideration at the next annual meeting, the following amendment to the by-laws: "Any applicant for membership shall submit his name upon one of the association's application blanks, duly vouched for by one or more members of the association, or by the resident state secretary of his respective state. He shall be a graduate of a regularly organized and recognized veterinary school, which shall have a curriculum of at least three years, of six months each, especially devoted to the study of veterinary science, and whose corps of instructors shall contain at least four veterinarians. If of a medical school, a similar curriculum as to time shall prevail." This alteration to go into effect after the annual meeting of 1892. It shall not be retroactive, nor apply to applicants who were college matriculants prior to its passage. Should this amendment be adopted it will prove a powerful lever in elevating the standard, for no school would be popular nor attractive to thoughtful veterinary students, whose diplomas would not be recognized by the national association. We trust that the veterinarians of the land will be in hearty sympathy with this movement, and aid it in every way that they can.

## DEPARTMENT OF PLANT DISEASES AND BACTERIOLOGY.

[In this department all questions pertaining to plant life, especially interesting to physicians, will be considered. From time to time reviews will be given of papers pertaining to fungi, especially such as cause pathological conditions. Matters relating to the adulteration of foods and medicines will be considered. All are cordially invited to contribute to the columns of this department.]

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L. H. PAMMEL, B. AGR., EDITOR.

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## MILK AND BACTERIA.

[Part of a paper read before the Iowa State Dairy Association at Waverly. I have added notes on several other recent papers touching on the subject.—Ed.]

A very large number of persons are apt to believe that bacteria are nothing but scavengers. It is true, many diseases in animals and plants are caused by them, but we must not overlook the vast benefits to be derived from these minute organisms. The great work of decomposing organic matter, the appropriation of nitrogen in plants like clover and pea, and in recent years bacteriologists have turned their attention to the subject of bacteria in milk, the ripening of cream and cheese. It is now pretty



well established that practical dairymen, cheese and butter-makers are likely to receive very substantial aid from bacteria. Long ago Pasteur established the fact that the souring of milk is a process intimately connected with the processes of life. The changing of milk sugar into lactic acid and curdling of milk is the direct result of certain bacteria which are present in milk. The aroma, whether it be good or bad, is the work of countless bacteria actively engaged in bringing about certain chemical changes. It is a well-established fact that certain kinds of cheese require certain kinds of bacteria. The work is just in its infancy. It is true some, Europeans notably, Storch, Adametz, Weigmann-Keil, Hueppe, Marpmann and others, within the last ten years have accomplished something. Yet much remains to be done.

**NUMBER OF BACTERIA.**—Miquel finds that milk two hours after its arrival in the laboratory, contained 9,000 bacteria per cubic centimeter; one hour later, 31,750; in two hours, 36,250; in three hours, 40,000; in seven hours, 60,000; in nine hours, 129,000; in twenty-five hours, 5,600,000. Weigmann-Kiel finds the germs in 100 cubic centimeters of sterilized milk inoculated with ordinary cow's milk, when maintained at 35° centigrade increase twenty-three times in two hours, in three hours sixty times. At the end of six hours they had increased 3,800 times. Now milk of the same kind, kept in a cellar at 12.5° C. in the two hours increased only four times, at the end of five hours, twenty-six times; in six hours 438 times. Milk kept in a refrigerator showed no increase in the number of bacteria.

**KINDS OF BACTERIA.**—The question naturally arises, are these bacteria of one kind or do they belong to different species. Investigation has shown that there are many species? Scholl enumerates more than thirty. The kinds in cheese also number many. It is natural to ask what are the changes produced by these bacteria. Adametz has divided them into three classes. In the first the milk is rendered acid, while the acid precipitates the casein of the milk. In the second class the bacteria curdle the milk without the formation of an acid. In the third class no visible changes are produced in the milk. They produce odors of various kinds, causing a decomposition of the milk. The latter may become acid or alkaline. Lactic-acid germs are common and these are of course important in the souring of milk. It has been shown that this souring is not due to a single species, as was thought at first, but a large number have the power of changing milk-sugar into lactic acid. Even some of the pathogenic germs like *staphylococcus pyogenes aureus*, have this property. One of the most interesting things in connection with the ripening of cream is the odor formed. This is due to the volatile products produced during the growth of bacteria. Storch has isolated several germs which give the proper aroma to cream. The butter made from cream in which these bacteria grew gave it a proper taste as well as the aroma of good butter. Weigmann-Keil has also ex-

perimented with bacteria of this kind. He has distributed the germs to creameries in his neighborhood with partial success. Certain species produced in milk give it a red color, the so-called red milk by *Bacillus prodigiosus*. Blue milk is produced by *Bacillus cyanogenus*. Yellow milk by *Bacillus synxanthus*.

**CONTAGIOUS DISEASES AND MILK.**—There is still one important phase to discuss : the carrying of germs which cause contagious diseases. Since the admirable researches of Koch, Klencke, Villemin and Bollinger, there is no longer any doubt that tuberculosis of man is identical with that occurring in bovine animals. The investigations of Dr. Ernst and others have shown that tuberculosis is largely carried through the milk. Dr. Ernst finds that in 28 per cent of cows in which the udder showed no traces of tuberculosis the milk was infected, and in 27 per cent of all cases examined by him he found the tubercle bacilli. Hirschberger has moreover shown that 55 per cent of the milk from tuberculous animals is infectious. It is interesting also to note that Heine has found that the tubercle bacilli retain their vitality from ten to forty days in sour milk. Feser and Chamberland have shown that anthrax may be carried by milk. It is also stated on good authority that "foot-and mouth disease" is carried by milk. More than 60 per cent of the calves fed on milk from cows affected with this disease died.

It is well known that diphtheria is often carried by milk. Epidemics of this disease have been reported in various places, the origin of which has been traced to milk. It is true that some investigators, notably Klein, believe that diphtheria is a disease in lower animals as well as man ; on this point there has been considerable difference of opinion. English investigators like Power, Klein, Cooper and Cameron, have shown that epidemics of scarlet fever have been carried in a similar way. According to these investigators scarlet fever occurs in animals. The germs of typhoid fever and cholera may also be carried by milk, but in these cases certainly only accidentally, which is generally thought to be the case in diphtheria and scarlet fever. That old milk, butter and cheese may be injurious in producing certain poisonous substances, ptomaines and tyrotoxin, is well demonstrated by the investigation of Brieger, Vaughan and others. The question of enzymes and ptomaines, the products of the growth of living organisms, is a most interesting one in chemico-biology, and still needs much investigation before much can be said in regard to it.

**STERILIZATION OF MILK.**—Dr. Soxhlet, of Munich, has recently brought to notice a new apparatus for sterilizing milk. Five years ago he called attention to the important difference in natural and artificial feeding of children. It is now pretty well established that in feeding children in the natural way less trouble is produced, which is due to the absence of germs in the milk, while that from cows contain germs which soon set up decom-

position or cause curdling, which acts injuriously on the infant. It has been stated that in sterilizing cow's milk it closely approximates that of the human mother. (Muenchener Medicinische Wochenschrift, Nos. 19 and 20, May, 1891.)

Strub calls attention to the fact that it is a difficult matter to get complete sterilization of milk. Three times disconnected sterilization in a Koch steam sterilizer at 100° centigrade did not destroy all of the bacteria. The author found *Bacillus mesentericus vulgaris*. Milk, however, sterilized in the above way can be safely used for children. (Centralblatt f. Bakteriologie u. Parasitenkunde, Vol. 7, 1890, p. 89. Jahresb. Gaehrungs-Organismen, 1890, p. 89.)

Bitter concludes from his work on the sterilization of milk, that it is either incomplete, or it loses some of its good tasting qualities. He finds that pathogenic organisms, typhoid fever and tubercle bacilli, and perhaps all pathogenic germs in milk, are destroyed in thirty minutes at 68° centigrade. Pasteurized milk will keep perfectly well thirty hours in the hottest summer weather. (Zeitschrift f. Hygiene, Vol. VIII, p. 240; Jahr. Gaehrungs-Organismen, 1890, p. 90.)

Lazarus finds that soda (3 g. per liter), bicarbonate of soda (3.9 g. liter), boracic acid (1-2 g. per liter), borax (4 g. per liter), salicylic acid (0.75 g. per liter), do not destroy saprophytic and pathogenic germs in milk. He also Pasteurized milk in which pathogenic germs were put. Although in the apparatus he used, the milk was heated up to 75° centigrade, it did not destroy all saprophytic germs, nor was typhoid fever bacillus positively killed. His experience is, therefore, at variance with those of Bitter. (Zeitschrift f. Hygiene, Vol. VIII, p. 207; Jahr. Gaehrungs-Organismen, 1890, p. 89.)

Weigmann-Kiel comes to the same conclusion that Krueger does in regard to butyric acid. It does not cause milk to take on a bitter taste. The author found a spore-forming bacillus, which was used to inoculate butter; in twenty-four hours the latter takes on a bitter taste. (Milch Zeitung, Vol. XIX, 1881; Jahr. Gaehrungs-Organismen, 1890, p. 88.) [1]

[1] Adametz: Die Bacterien normaler und abnormaler Milch; Oesterreichisch Monatsschrift für Thierheilkunde, 1890, pp. 11, 61, 121.

Conn: Bacteria of Milk, Cream and Butter. Second and Third Annual Report Storr's School Agr'l Experiment Station, p. 52, p. 136.

Duclaux: Le Lait, Paris, 1887. See pp. 57, 213.

Fitz: Ueber die Spaltplzgaehrungen; Berichte d. Chem. Gesellsch. Vol. XV, 1882, p. 867.

Hueppe: Mittheilungen a. d. Geo. Amt., 1884; Deutsche Med. Woch., 1884. Ueber die Zersetzungen der Milch und die biologischen Grundlagen der Gaehrungsphysiologie. Deutsche Medicinische Wochenschrift, Nos. 48, 49 and 50.

Loeffler: Ueber Bacterien in Milch; Berliner Klinische Wochenschrift, Nos. 33 and 34, 1887.

Marpmann: Ueber die Erreger der Milchsäure-Gaehrung; Ergänzungshefte zum Centralblatt für Allgemeine Gesundheitspflege, Vol. II, p. 117.

Scholl: Die Milch, Wiesbaden, 1891.

Storch: Nogle Undersogelser over Flodens Syrning. Copenhagen, 1890; Biedermann's Centralblatt, Vol. XX, p. 48.

Weigmann-Kell: Die Bakteriologie im Dienste der Milchwirtschaft; Milch Zeitung, 1891, Nos. 19 and 20, pp. 213, 235.

## MICROBES OF PUS.

At a recent meeting of the Iowa State Veterinary Society Mr. S. Whitbeck read a paper on the Microbes of Pus. Since the subject is of some interest to practitioners generally, I have prepared the following abstract: The work was done in the bacteriological laboratory of the Iowa Agricultural College. Few investigators in this country have taken up the subject from a veterinary standpoint, though several investigators, notably Passet, Rosenbach, etc., have done so in Europe. It will not be necessary to enter into a historical summary of the subject; suffice it to say that the whole matter was one of mystery till Cagniard-Latour and Schwann demonstrated that putrefaction and fermentation, especially in yeast, were intimately associated with living organisms. Lister and his antiseptic treatment of wounds, marks an important era of progress. As early as 1865, Klebs discovered cocci in pus; he again referred to the same organisms in 1872, in a seat of suppurative inflammation before pus had formed. In 1881, Ogston announced the discovery of two kinds of organisms in pus from sixty-nine abscesses. The pathogenic micro-organisms thus far found in pus are as follows:

1. *Staphylococcus pyogenes aureus*.
2.       "               "       *albus*.
3.       "               "       *flavescens*.
4.       "               "       *citreus*.
5. *Bacillus pyocyaneus*.
6.       "       *foetidus*.
7. *Streptococcus pyogenes*.

The germ most frequently found is the *aureus*, while the *pyocyaneus* is the most malignant. Numbers 1, 4, 5 and 6 were isolated in the course of his studies. The *aureus* was isolated twice from students (wrist and face) and once from a deep-seated abscess on neck of a horse. Inoculation experiments were made with rats and mice. It proved to be germ of suppuration and when gaining entrance into the circulation septicæmia and death followed. The *citreus* was obtained from the fistula of a horse. It caused suppuration and when gaining entrance into the circulation, septicæmia. The *pyocyaneus* was isolated from an open synovial bursa of a horse. Both mice and rats were inoculated. It also causes suppuration and septicæmia when it gains entrance into the circulation. *Pyogenes foetidus* was obtained from the liver of horse that died of septic poisoning. Mice and rats inoculated died in a short time. His general conclusions are "*Bacillus pyocyaneus* proved to be the most malignant germ of those isolated while the *Staphylococcus pyogenes aureus* was most often found, and in each case in an originally closed abscess, thus proving that the infection was from the blood or the tissue at seat of abscess."

## REVIEWS.

METTSCHNIKOFF AND E. ROUX have recently published a paper in which they consider the bactericidal property of the blood of the rat. Metschnikoff has been very persistent in his efforts to uphold the theory of phagocytosis which he first advanced. The authors conclude that immunity of mice is due not alone to the serum, but the combined action of the anthrax bacillus and its chemical action on the leucocytes. In this case, as in all others, studied by the authors, phagocytosis plays an important role. (*Annales de l'Institut Pasteur*, Vol. 5, p. 479.)

SWINE PLAGUE.—The department of agriculture has recently issued a small volume of 166 pages with twelve plates, on Swine Plague. The author, Dr. Theobald Smith, has done much to clear up several epizootic diseases of swine common to North America. Most readers know that there are two diametrically opposed views on this subject, the department of agriculture holding that there are two distinct diseases—hog cholera and swine plague. Dr. F. S. Billings insists that only one disease occurs. He has recently had a champion in Dr. Frosch, assistant in Koch's laboratory. Raccuglia has recently supplemented Dr. Smith's work and comes to the conclusion that hog cholera and swine plague bacteria are different germs, so that the diseases are necessarily distinct. There are important differences between the germs, as nearly all testify who have studied the germs; not only in size, but the hog cholera germs can be cultivated much more easily than the swine plague germ.

BRUCE AND LOIR bring together some of the diseases of live stock in Australia. It appears that anthrax first appeared in Australia in 1847. In 1890 a laboratory was established on Rodd Island, near Sydney, to inoculate with Pasteur vaccine to prevent the disease. In 1890, 150,000 sheep were inoculated. The mortality resulting from the inoculation is insignificant. Where inoculation is not practiced, more than 15 per cent succumb. All animals imported into Australia are kept under strict quarantine (*Annales de l'Institut Pasteur* Vol. V. p. 177).

PERDRIX gives several tables to show the efficiency of inoculation treatment to prevent Rabies. In 1886, 2,621 persons were treated; mortality .94 per cent. In 1887, 1,770 persons were treated; mortality .73 per cent. In 1888, 1,622 persons were treated; mortality .55 per cent. In 1889, 1,830 persons were treated; mortality .33 per cent. In 1890, 1,540 persons were treated; mortality .32 per cent. (*Annales, Pasteur Institute* Vol. V, p. 344).

## ORIGINAL CONTRIBUTIONS.

## FROM JENNER TO KOCH.

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It was a popular belief in some parts of England many years ago, that a certain mild disease taken from the cow protected a person from small-pox. It attracted the attention of Jenner, a young physician, who began to investigate the subject about 1775. He found that certain pustular sores, which appeared on the teats of young cows, communicated pustulous sores to the hands of the milkers, producing considerable constitutional disturbance, and that afterward they were secure from the contagion of small-pox. He verified this impression by careful observation. He supposed it was small-pox, which, passing through the cow, became a mild disease, and that it was a modified varioloid, and named it *variola vaccina*. For a long time he was unsuccessful in obtaining the lymph for transfer, but in 1796 he succeeded in *vaccinating* a boy of 8 years, with the *cow-pock*, which took a regular course. In a few months after he exposed him to small-pox, and even introduced variolus matter into his arm and no small-pox was taken. Thus was vaccination, or a substitute disease, induced, which was a mere trifle in comparison with the milder form of the dread scourge. Notwithstanding this, the history of vaccination for many years, and even up to the present time, is one of a long wrangle over its efficacy, and of many grave doubts, whether it is not wrong to thwart providence in preventing a loathsome disease, and many arguments are advanced to prove that innumerable evils have followed the introduction of an animal disease into the human system. Statistics have been invoked to show that consumption and scrofula and skin diseases have largely increased since vaccination was introduced. No doubt with some truth, for the large number saved from the mortality of small-pox leaves a larger percentage for the other diseases, but in no other sense.

From the vesicle started in the boy's arm, in 1798, Jenner vaccinated many, and the succession was kept up for some years and then seemed to fail. A Dr. Woodville, of the London Hospital, obtained a mild and efficient lymph from a London cow in 1779, which he supplied to Jenner and to the world. The succession from arm to arm was kept up until 1836, when a new crop was started from a pustule on the hand of a milker in Passy, France. This was successfully used in every part of the world, though several other cases are mentioned, of the pox taken from cows in some parts of England and in Germany. The Passy virus was mainly used down to 1866, when it was again taken from a cow in Beaugency, France. This is the origin of the lymph used at present, which is extensively repro-

duced by inoculating calves in which it produces the genuine disease and becomes a source of virus, free from any suspicion of any other contagion. Many countries have now vaccine farms, where this lymph is produced.

The vaccine disease is now clearly proved not to be *variola vaccina*, or cow small-pox, but a distinct bovine disease. When introduced into the system it feeds on and destroys the elements that support the germs of variola. We might speculate on the total destruction as in entire immunity, partial destruction and non-destruction, to account for the total or partial effect.

In 1850 Pasteur, a young French scientist, began to investigate the subjects of fermentation and putrefaction. He published the account of his studies in 1857, in which he showed conclusively that chemical changes were produced in fermentation by and in presence of a vegetable growth, and also that all putrefactions were accompanied by organisms.

Pasteur reasoned that all infectious diseases were of like nature, that they did not originate from a spontaneous generation, but that scarlet fever, small-pox and kindred diseases came from germs that grew when planted in a congenial soil. Becoming convinced of this, the conclusion was not far off that anthrax, or malignant pustule, which was devastating the herds of Europe, was of parasitic origin.

Dr. Robert Koch, a young German physician, in 1876 made the discovery of the *bacillus anthracis*, proving that its introduction and growth produced the pustule and the splenic fever; every part of the animal tissue was pervaded by them. The disease was propagated by inoculation in most animals. It was certain death to many, especially the guinea-pig, while birds were not affected by it. He found that a temperature of  $110^{\circ}$  destroyed or prevented the multiplication of the bacilli.

It occurred to Pasteur that the high temperature of the birds' blood (from  $108^{\circ}$  to  $110^{\circ}$ ) prevented their multiplication in them. He accordingly cooled down the fowl and inoculated it with anthrax, and it died in twenty-four hours of splenic fever. Pasteur inoculated his chilled fowl with anthrax, and when the disease was fairly under way restored it to warmth, and it recovered. He also found that a certain heat or exposure to oxygen prevented the multiplication in pure culture; he obtained a starved or stunted growth and produced in animals a mild disease, and found on trial they were proof against inoculation or contagion of the other. This was the meaning of the cow-pox of Jenner; it was an attenuated variola. The government of France placed a herd of cattle and sheep at Pasteur's disposal. Half of them were inoculated with the mild virus, and when it had worked all were inoculated with the malignant anthrax. One half were not affected; the other half died with splenic fever. After this inoculation with the attenuated virus was practiced until the malignant disease was stayed entirely.

In 1887 Koch made the discovery of the *bacillus tuberculosis*. Whether

we have yet found the germ of cholera and diphtheria, or rather differentiated them, is a question not settled fully.

The inference, however, is clear that the germ diseases, and they are evidently many, may all be prevented or modified by an attenuated virus or a mild disease that shall be substituted for them. A revolution in practice of medicine seems to be not far off. It must be accepted.

When the yeast plant is started in a fruit-juice or a sugar solution, it grows and multiplies and transforms the fluid until its food is exhausted, or until about 16 per cent of alcohol is produced. Then it dies, poisoned by its own production. It is found in like manner, that in other fermentations and in putrefactions, a substance is generated that destroys the germ or bacillus that produced it. Alcohol is the ptomaine of vinous fermentation. Cooking dissipates some ptomaines, and the digestive fluids render others harmless, and in some stomachs there is an immunity against some of the most virulent. The putrid meat that does no injury when eaten by the dog, would produce death or violent distress in the stomach of man, and an extract introduced into the circulation of either would be fatal. Some time after 1860 Surgeon Lister, of Edinburgh, who had accepted the theories of Pasteur, conceived the idea that suppuration and gangrene came from germs introduced from without, and acted accordingly. His immediate success followed. He used carbolic acid, just then brought into notice. Lister's method has made a revolution in surgery. "With antiseptic precautions" has become familiar to every one, together with the announcement that the brain, the abdomen, or the chest, can be explored with safety.

In the meantime, bacteriological studies have been carried on by many able investigators. Koch went to Egypt to investigate cholera, and determined that the *comma bacillus* was the cause of it. In 1884, Klebs and Loeffler described the bacillus of diphtheria. As early as 1883 it was shown that the various after-stages of bacterial disease could be produced by introducing the ptomaine of cultivation. This is a logical sequence, as the theory of bacterial disease is, that it is the poison generated that works the mischief. In the fermented grape juice, it is the ptomaine alcohol that produces intoxication.

At the international medical congress of 1890, in Berlin, Koch made the announcement that he believed he had discovered a remedy for the arrest or cure of tubercular disease; but that he had not fully verified it, and did not wish to make known the process of its preparation. His communication was received with the wildest enthusiasm, both on account of the noted position of the author and the importance of the subject.

It was not an entirely new doctrine that the ptomaine, which would set up a disease, would prevent the subsequent attack of the disease, just as alcohol will prevent fermentation. In this case the claim was that the



poison will cure the disease after it has been set up. In chronic cases it has proved of not much benefit. Much benefit has been derived from it without doubt, but the extravagant expectations raised by the announcement has not been realized; this may have been the reason for his hesitancy in putting it forward. As a curative agent it is a failure; still it has its use.

The investigations of fermentation and the discussions it caused in the attempt to prove or disprove spontaneous generation, led to the discovery of bacterial disease and has made a revolution in surgery, and the coming revolution in medicine is as confidently predicted. The last decade has been the period of the greatest advance, but the history of the movement goes back to Löwenhœck and 1680, or as much as two hundred years.

It was a doctrine of Hippocrates, that one disease might be set up to cure another, or that only one disease would possess the system at the same time. The observations of the ancients were guesses at truth. The moderns have verified many of them by finding the immediate cause and inferring from facts before them. Every new-discovered truth in medicine leads out into wider fields of probabilities, until it seems not far away when we shall have not so much the cure of disease in our hands as the means of prevention, which shall add to the comfort and length of life, and be what the ancients dreamed of, a means of prolonging life indefinitely.

## OPERATIONS IN MALIGNANT DISEASES.

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Operations in this class of diseases, where the entire removal of the diseased tissues is possible, are eminently successful, and no one hesitates to recommend them. Snow, in his recent brochure, does not hesitate to pronounce carcinoma as originally a local affection, and gives what he conceives to be the early pathology, and the method by which metastasis is produced. The reappearance of the disease at the original site where an operation has been performed, before the end of two years, may be classed as a recurrence of the disease. But when a longer time has elapsed, the appearance of a malignant disease at the site of the former operation may, although identical with the former in every particular, be an original disease, brought about by the displacement of cells, or other agencies not connected with the former affection. Recurrence, however, is of so frequent occurrence as to be familiar to all surgeons, and the causes are generally well known at the time of operation, so that the after-conduct of the case can be confidently predicted by the operator. Recurrence is simply the continued growth of whatever remnant of the original growth is not removed by operation. In some cases its growth may be materially retarded by the operative procedures; in others, if not actually facilitated,

it is certainly not delayed. A large majority of the cases come under the first classification; a very small minority belong to the latter.

In some cases the disease has seemed to progress more rapidly subsequently than prior to the operation. In many cases, no doubt, this rapidity is more apparent than real. In the latter stages the process and destruction of tissue, owing to the more extensive involvement, are more rapid, even in cases where no operation has been performed, and we cannot say where a case recurs and progresses rapidly after operative procedures that it would not have behaved in exactly the same manner had no operative interference been resorted to. While rapid growth is an indicative of malignancy the histories are not rare where the tumors have remained small or been of slow growth for a long time and have suddenly taken on a very rapid development. Some of these may have been benign in their incipency, malignancy being engrafted at a later date; others undoubtedly of a malignant nature from the beginning, but for want of sufficient stimulus, or on account of the vitality of the surrounding structures, they have remained in *statu quo* for a comparatively long period of time. Early operations are sanctioned by all and give the best results; late operations are condemned for the reason that permanent results are practically impossible. With me this seems to be too narrow a view to take of a disease that produces so much misery, both mental and physical. The great principles of rest and pain laid down by Hilton, apply with equal force to the psychical, as well as the physical. The proof is not wanting of numerous instances of operations that have been simply exploratory, yet have relieved or even cured, where the disease was undoubtedly malignant. A large number of tubercular difficulties, such as tubercular peritonitis, belong in this category, and all influenced no doubt by the impression made upon the mind. In some cases of tubercular disease, where irrigation and antiseptics are imperfectly practiced, the interference with nutrition may have some effect, but even this is not necessary, as shown by J. W. White in a series of articles now being published in *Annals of Surgery*, under the head of "Operations *per se*."

In looking upon late operation (the term late being a relative one) from a purely physical standpoint we find that there are at least two objects to be attained, namely, temporary relief from pain and retardation of the disease-process. Wherever one or both of these results can be obtained, especially relief of pain, by an operation that does not jeopardize the patient's life, I believe an operation not only justifiable, but obligatory, although no attempt is made to remove the entire pathological affection. The reasons for this are that it produces rest psychically as well as physically, whereas before all was unrest and anxiety, enabling the patient in a few cases to resist further encroachment and escape the ravages of a terrible malady. The blood stream in this class of cases seldom or never becomes contaminated, but through vessels disseminate the *materies morbi* throughout the entire sys-

tem, or rather, would do so were it not for the filtering function of the glands. This process is not without its advantages. In some cases of the partial removal of superficial tumors, metastasis has occurred in one of the vital organs which are less sensitive and less exposed, and while the result is no less certain, the sufferings are usually less acute, causing the patient to attribute his failing health to something less frightful, to his own mind at least.

The rapidity of metastasis is sometimes quite remarkable. I have seen epithelioma of the penis followed by enlargement and degeneration of the inguinal glands so quickly as to appear almost simultaneous. In removal of some of the organs, as the uterus, the involvement is entire and advanced to such a degree as to leave little or no normal tissue, and its complete removal results in a cure. The same is true of the kidney, but should the operation prove less successful and relief be afforded for a few months only, would not the operation be justified?

There is another point to be gained by operating in all cases where even temporary relief is to be expected, in enabling the public to appreciate the fact that operations are the rule. When this is once thoroughly inculcated as the attitude of the profession, there ought to be far less difficulty in convincing the patients of the advantages of an early operation.

I believe that we, as surgeons, too frequently content ourselves with simply advising a patient as to the advisability of an operation, without sufficiently impressing upon his mind the absolute necessity of it. While we have nothing superior to the knife for the relief of these cases, let us use it freely in all cases where it promises relief, psychical or physical.

Medicines are freely administered when the patient is thoroughly cognizant of the fact that only temporary relief is possible; should we not educate our patients to the same point in surgery?

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POPULAR HYGIENIC LOGIC.—Mr. Simkins is a great enthusiast on the subject of "chest protectors," which he recommends to the people on every occasion. "A great thing," he says. "They make people more healthy, increase their strength and lengthen their lives." "But what about our ancestors?" some one asked. "They didn't have any chest protectors, did they?" "They did not," said Simkins, triumphantly, "and they are all dead now! All dead!"—*Exchange*.

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I HAVE used the Three Chlorides with marked success in syphilitic iritis, tertiary syphilis with anemia, as a tonic alterative, and for various conditions in which mercury, iron and arsenic are indicated in a palatable form, and take great pleasure in recommending it to brother practitioners. Respectfully,

W. C. ABALY, PH. G. M. D.

Madison, Wis., Sept. 22, 1891.

## THE MUSEUM.

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### PROGRESS BY DEGENERATION.

"If the reader can bear the painful spectacle of his ancestor's degradation, I would ask him to imagine the visit of some bodiless Linnæus to this world during the upper Silurian period. Such a spirit would, of course, immediately begin to classify animated nature, neatly and swiftly.

"It would be at once apparent that the most varied and vigorous life was to be found in the ocean. On the land a monotonous vegetation of cryptogams would shelter a sparse fauna of insects, gasteropods and arachnids; but the highest life would certainly be the placoid fishes of the seas—the ancient representatives of the sharks and rays. On the diverse grounds of size, power and activity, these would head any classification he planned. If our Linnæus were a disembodied human spirit, he would immediately appoint these placoids his ancestors, and consent to a further analysis of the matter only very reluctantly, and possibly even with some severe remarks and protests about carrying science too far.

"The true forefathers of the reader, however, had even at that early period very probably already left the seas, and were—with a certain absence of dignity—accommodating themselves to the necessities of air-breathing.

Swimming in the pluvial waters, or inert and caked over by the torrid mud, he would have discovered what he would certainly have regarded as lowly, specially modified, and degenerate relations of the active denizens of the ocean—the *Dipnoi*, or mud-fish. He would have found in conjunction with the extremely primitive skull, axial-skeleton, and fin, possessed by these Silurian mud-fish, a remarkable adaptation of the swimming-bladder to the needs of the waterless season. It would have undergone the minimum amount of alteration to render it a lung, and blood-vessels and other points of the anatomy would show correlated changes.

"Unless our zoological investigator were a prophet, he would certainly never have imagined that in these forms vested the inheritance of the earth, nor have awarded them a high place in the category of nature. Why were they living thus in inhospitable rivers and spending half their lives half baked in river-mud? The answer would be the old story of degeneration again; they had failed in the struggle, they were less active and powerful than their rivals of the sea, and they had taken the second best road of preservation—flight. Just as the ascidian has retired from an open sea too crowded and full of danger to make life worth the trouble, so in that older epoch did the mud-fish. They preferred dirt, discomfort and survival to a

gallant fight and death. Very properly, then, they would be classed in our zoölogist's scheme as a degenerate group. Yet such were our ancestors, and it may be that nature is, in unsuspected obscurity, equipping some now humble creature with wider possibilities of appetite, endurance, or destruction, to rise in the fulness of time and sweep *homo* away into the darkness from which his universe arose. The coming beast must certainly be reckoned in any anticipatory calculations regarding the coming man."—*Gentleman's Magazine*.

"SIMILIA'S FATE."

In centuries when like a spluttering candle  
The vague misconception of rational truth,  
Obscuring the sources of impotent jangle,  
Depicted but ignorance, vile and uncouth.

In days when the mind that would venture to labor,  
With problems a pope or a bishop had solved,  
Immediate reasons adduced to its neighbor,  
That it from the flesh should at once be dissolved.

Then, weeds like "similia" prospered and flourished,  
Because they were grown in a suitable soil,  
But now, in the garden of knowledge, are nourished  
The flowers of truth, to remunerate toil.

But, long as unscrupulous nabobs are thriving,  
With consciences dull as the priestcraft of old,  
On victims, the prey of their shallow conniving,  
Their quackery never will loosen its hold.

The wonder is not that the serpent entices  
Its victims, but rather that victims should be  
Repeatedly trapped by the silly devices  
So patently sham to the mind that is free.

D. H. BEAN, M. D., *Mendota, Ill.*

"THE STRANGE PHENOMENA connected with idiosyncrasy serve but very dimly to light up the gloom of the chasms of our ignorance of physiological processes. We look with wonder into the depths and shudder that at last we know so little as to the ultimate constitution of protoplasm, the nature of nutrition, and the *modus operandi* of toxic substances. The writer knows a family of which the female members for several generations have been unable to eat strawberries without genuine and decided symptoms of

poisoning ensuing. The male members of the family eat them as others do, but a single berry given by a disobedient nurse in a few hours killed a little daughter of two years. Dejean says that the celebrated Hachu was thrown into convulsions whenever he dared to eat strawberries.

"Probably the most remarkable case of idiosyncrasy on record is that of David Waller, described in detail by Dr. Overton in the *Southern Journal of the Medical and Physical Sciences*, Vol. III., 1855. In all other respects than that to be described, Waller was a healthy, normal man, born of healthy parents. Seven brothers and sisters were free from his idiosyncrasy, and his own seven children were also free from it. But to this poor man life became almost unendurable because for him wheat flour was poison. Unbelieving friends would deceive him, and put a pinch of flour into his food. Trusting them, he would eat, but the violent toxic symptoms never failed to follow."—*Medical News*.

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TRUE SEARCHERS after light will reject no ray on account of its humble origin. Our most skilled investigators have at times to acknowledge the discovery of new and totally unsuspected laws by inquisitive but original lay-students. Especially by nineteenth-century journalists. As a specimen we append the following interesting contribution to pathology from the fiery pen of one of our local editors, kindly sent us by Dr. Dalbey, of Cedar Rapids. True, our editor did not actually discover the fact himself, but he discovered the "leading physician," which is almost as great a feat :

"THE PERILS OF GUM—IT RUINS THE EYES."

"The crusade against gum-chewing bids fair to open again, and with reason. If the useless jaw motion in this section alone could be accumulated it would probably show a total horse-power sufficient to run the proposed new electric motor cars. Gum-chewing is declared and recognized by many to be a bad habit, and not only a bad habit but an injurious one, as it ruins the eyes and affects the whole nervous system. A leading physician in speaking of the perils of gum-chewing says :

"If the girls who affect that habit only knew that it ruined the eyes and injuriously affected the whole nervous system they would perhaps cease to cling to it. The muscles of the jaw are connected with the spine, and from the spine delicate nerves branch out in all directions. Some of these extend to the eyes and are known as the optic nerves. If you will notice a person eating you will see a palpitation of the temples, which is caused by the working of the optic nerves (!!) These nerves are very sensitive. If over-worked by an incessant motion of the jaws they become weak and shrunk and the eye-sight is impaired, for the shrinkage of the nerves draws the eyes back into the socket, and as a result the pupil of the eye becomes

affected. Then the eye becomes weak, its color changes and eye-glasses become necessary.

"This may seem to be a serious way of looking at a small matter, but it is not" (!!!)

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## STATE ITEMS.

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DR. J. H. GREEN, of Dubuque, has recently returned from a three weeks' trip in the east.

THE TRI-STATE MEDICAL SOCIETY made a most auspicious beginning at its first meeting at Keokuk, November 24th. Over twenty-five physicians were present and an interesting program carried out. The following officers were elected: President, J. R. Hull, Sciota, Ill.; vice president, T. G. McClure, Dowds, Iowa; secretary, J. M. Ball, Keokuk; treasurer, H. S. Reese, Wayland, Mo. Papers were read by C. E. Ruth, of Muscatine, R. H. Fegers and J. M. Ball, of Keokuk.

DR. D. M. WICK, of New Hartford, has sold his practice to Dr. C. W. Childs, and intends to spend the winter in New York in post-graduate studies, after which he will locate in Cedar Falls.

DR. J. A. POTTER has located at Sherrill's Mound, in place of Dr. W. M. Safely, who has moved to Montana.

AT Davenport, December 2, occurred the wedding of Miss Jessie Peck, daughter of Dr. W. F. Peck, to Mr. Henry Vollmer, of that city. The event was largely attended by the profession of the state, the Faculty of the medical department of the State University going down in a body.

PHYSICIANS throughout the state are cordially invited to attend the meeting of the Iowa Public Health Association, in Des Moines, January 28 and 29, 1892. The list of officers alone is sufficient to guarantee an interesting session. President, A. W. Cantwell, Davenport; Vice-President, P. J. Fullerton, Raymond; Secretary, I. S. Bigelow, Dubuque; Executive Committee, J. E. Sansom, Tipton; J. F. Kennedy, Des Moines; J. P. Savage, Sioux City. Local health officers are especially urged to be present.

THE profession of Des Moines has received an addition in the person of Dr. W. S. Richards, late of New York, who expects to devote his attention solely to otology.

THE CAPITAL DISTRICT MEDICAL SOCIETY held its regular semi-annual meeting at Des Moines, December 3d and 4th. A large attendance and a varied program are reported.

REPORTS from all over the state indicate an exceedingly "quiet time" as far as practice is concerned with nearly all physicians, and collections extremely difficult. What few cases of *la grippe* are reported seem to be

principally engaged in basely attacking the members of the profession personally.

DR. W. H. WARD, of Des Moines, has removed with his family to Phenix, Arizona, on account of his health. The many friends of the doctor will sincerely regret his removal from the state, and unite in hoping that his well-known success will attend him in his new field.

THE next meeting of the Missouri Valley Medical Society will be held at Lincoln, Neb., December 17 and 18. A most elaborate program has been issued and all are heartily invited.

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#### IN MEMORIAM.

DIED, at his home in Des Moines, Iowa, November 5, 1891, DR. HOMER R. PAGE, in the fiftieth year of his age.

Here passed away one of the noblest, sweetest souls it has ever been our lot to meet. One whose memory will be a perpetual inspiration.

DR. PAGE was born upon his father's farm at Milan, Ohio, October 17, 1842, and his early boyhood was spent there. Ten years later his parents moved to the then frontier, near Iowa City, in this state. Not satisfied with the limited common-school education picked up in the intervals of farm-work, he determined to have something better, and by dint of determined effort and many sacrifices he succeeded in working his way through Iowa College, Grinnell, where he graduated.

This was during war-times, and the doctor joined a company which was raised among the students and marched south, but the struggle was over before they reached the front. He then accepted the chair of Greek and Latin in Western College, where he met his future wife, Miss Hattie Frisbee, to whom he was married in 1869. The same year he entered the medical department of the State University at Iowa City, where he graduated, and settled in practice at New Sharon in 1871.

He rapidly outgrew this narrow field, and in 1878 he removed to the Capital City, where he soon acquired a practice and reputation which placed him in the front rank of physicians in the state, and which steadily grew until death cut him down in the early prime of his professional life.

The doctor was a valued member of the Polk County Medical Society, the Iowa State Medical Society, the American Medical Association and the American Academy of Medicine. He was professor first of Physiology and later of Obstetrics for five years in the Iowa College of Physicians and Surgeons, Des Moines, and the faculty and students mourn the loss of one of their ablest and most progressive instructors.

Though a man of peculiarly modest and unassuming disposition, he had not only attained an unusual degree of skill and success in his profession, but was of broad and liberal culture and a classic scholar of no mean



order. High as were his professional attainments, it was the pure, true, lovable character of the man that most impressed all who knew him. His patients feel that they have lost a warm, true friend, a member of their own family almost, while he was not only honored but personally beloved by all his fellow-practitioners. To no one could the title, "The Beloved Physician," be more truthfully and universally applied.

Noble, faithful, devoted, generous to a fault, his memory will live eternally graven upon that most enduring of tablets, the human heart.

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### N<sub>2</sub>O—NOH.

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"THERE is a great difference between a good physician and a bad one, yet very little difference between a good one and none at all."—*Arthur Young*.

\* \* \*

THE following contribution to humorous materia medica is from the stuttering tongue of Travers, the well-known wit and society man. He was standing one day on the steps of the Astor House, with a "man-about-town," who was pointing out to him the various local celebrities as they passed by. Bye and bye a notorious member of the *demi-monde* came sweeping past closely followed by a beautiful little toy spaniel. "There goes Mlle. So-and-so," remarked the gentleman, "with her darling dog, Peppermint." "P-p-p-eppermint," sputtered Travers, "she ought to c-c-c-call him 'H-h-h-oarhound.'"

\* \* \*

THE following is a copy, *verbatim et spellatim*, of a note received by the editor, a short time ago: "Doc i have the arsiples in my face plesse send me some thing for it i am using iodine, i want some thing for my blood an cidenys—i am sick at my stomick all the time—plesse send the medson with the boy."

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### READING NOTICES AND MISCELLANY.

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AN Irish high court has decided that injury to a physician resulting in blood-poisoning and death is an accident, so that accident insurance companies are compelled to pay such insurance. Hereafter blood-poisoning from accident will not be repudiated by the accident insurance companies.—*American Lancet*.

ANTIKAMNIA is no longer a stranger to the medical profession, but is daily winning laurels in its mission as "opposed to pain." It is described

as a new combination of coal tar derivatives, of the series CnH<sub>2n-6</sub>. Antikamnia has as its base the derivatives of the amido-benzoles, so combined as to obviate the bad effects caused by many of this series of organic bodies when administered alone. Briefly stated, it is indicated in Cephalalgia, Neuralgia, attacks of Acute Rheumatism, Locomotor ataxia, Sciatica and the disorders of menstruation accompanied by pain. In the treatment of Malaria, typhoid and other fevers, it is fast winning its way.—*W. Thornton Parker, M. D., U. S. A.*

THREE of the Great Britain life insurance companies have given up the medical examination of applicants for insurance.

"AFTER an experience extending over a period of twenty-five years, during which time we have used almost every variety of infant food, we are satisfied that we have in Lacto-Preparata and Carnrick's Soluble Food the most perfect and rational substitutes for mother's milk that have ever been introduced to the profession. The *Lacto-Preparata* is prepared wholly from milk, with the caseine digested and part of the butter replaced by cocoa butter. This is the most suitable food for infants during the first six months of life. It is easily prepared by the simple addition of water, is unaffected by keeping, and represents the normal constituents of mother's milk."

FROM a French journal: Patient to physician: "As for me, doctor, I am a man of regular habits, a methodical man. For instance, I take a bath every year whether I need it or not."

THE subject of uterine disease reminds me that during the past six months I have had my attention drawn to a remedy which goes under the name of Diouviburnia. I was not familiar with the component parts, but having read the emphatic endorsement by Drs. J. B. Johnson and L. Ch. Boisliniere, of St. Louis, two of the most eminent professors and practitioners of the city, as well as that of Dr. H. Tuholske, I was induced to give the compound, a fair and thorough trial, and I am convinced that in Diouviburnia we have a valuable addition to our armamentarium in our battle against the enemies of the noblest work of God—Woman.—*Medical Mirror.*

## **Dr. J. M. Ball,**

Office: Woolley Building,

Cor. Fifth and Blondeau Sts.

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EYE, EAR, NOSE and THROAT.

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# THE VIS MEDICATRIX.

THE JOURNAL OF

THE IOWA STATE MEDICAL SOCIETY.

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FEBRUARY, 1892.

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THE BORDER-LAND OF INSANITY.

S. B. CHASE, M. D., *Osage.*

The subject to which this paper calls attention demands an abler pen than the writer wields. To trace the intricacies of mind in its primary divergence from its normal standard in health, and determine the limit of responsibility, require profound research and a master's skill. In the prosecution of this abstruse inquiry the pen has been laid aside more than once in relinquishment of the endeavor; and now indulgence is craved for what may be said.

For more than a half century the writer has occupied a position which has enabled him to observe the unfortunate class who dwell in this borderland; and for more than a third of a century has been connected with the insane hospitals of our noble state, which stand in the fore-front, if not pre-eminent among these merciful homes where physical comfort and mental care abound, and which more than aught else indicate the advancement of civilization.

The limit of this paper will not permit an extended discussion of this great question. The utmost permissible is but to scan it briefly, and if possible suggest a hopeful way of invading its arcanum. To prove absolute freedom from mental bias, even in the most perfect, might be exceedingly difficult. Moreover, that we may sit in judgment upon those whose mental obliquity is less than our own, is among the sad possibilities of humanity. These reflections should broaden our charity, and temper our justice with mercy.

"No person," says Dr. Savage, "is perfectly sane in all his mental faculties, any more than he is perfectly healthy in body. There are flaws on the physiological side, and defects on the mental." While taking it for

granted that "insanity depends upon change in the nervous structures of the body," the doctor would not restrict its causation "to changes in the brain alone." He entertains the conviction that "it may sometimes depend upon irritation propagated along the nerve tracks at a distance from nerve centers."

"The brain, like a kaleidoscope," says this lucid writer, "consists of innumerable parts which adapt themselves to varying patterns. A shake occurs, the pattern changes, but each one of the pieces exists as it did before; no change in shape, no change in color, only change in relationship." Thus, the doctor believes, "it will be found to be with many forms of insanity, change in one faculty changing the mental pattern." The correlation of mental and physical forces is as clearly established as is any other fact in physiology, though its *modus operandi* is yet to be determined. When it shall be, "it will come from a study of the neurosis, and not from analysis of the psychosis."

Men differ mentally as widely as they differ physically. Yet so long as they act in common with mankind we call them sane; when their acts are greatly at variance we call them insane, though there are marked irregularities within the limits of health.

The avenue leading to the mysterious nexus between sanity and insanity lies along the sometimes doubtful path of sanity. Each case has a pharos peculiar to itself, by the light of which its revelation is to be examined, and its condition determined. "As no two brains are precisely alike, so no two persons are exactly alike in their mental processes," says Hammond. The same able writer has given us the following terse, yet comprehensive definition of insanity: "A manifestation of disease of the brain characterized by a general or partial derangement of one or more faculties of the mind, and in which, while consciousness is not abolished, mental freedom is perverted, weakened, or destroyed. It is, therefore, only a symptom, like paralysis, coma, or any other phenomena of mental disorder." The fact that insanity is sometimes produced by moral causes affords no proof that it has any immaterial foundation.

The border-land of insanity is the *terra incognita* of physiologists and psychologists. Of its boundary, Dr. Mandsley has well said: "Though there is a border-line there is no boundary-stone." Here, indeed, is the battle ground upon which lawyers, judges and juries have waged forensic war for ages. "The old and oft repeated statement that insanity is a perversion of the ego is true." We should not forget, however, that sanity and insanity are but relative terms, and that a man's mental condition should be considered in relation to himself. Changes of habit, taste and disposition are prominent factors in determining his mental condition.

The assistance we sometimes receive in determining the mental condition of these aberrants, from indications manifest, is often less than that

afforded the wanderer lost in a forest by the trees among which he gropes. These furnish unerring signs to the red man, enabling him to trace his way fearlessly where those unskilled in this art are hopelessly bewildered. Thus it is with those who make the study of mental diseases their life work. The glimmerings of impending mental disorder are to them usually unfailing indications; while to the general practitioner they are often obscure, if not shrouded in darkness and doubt. To the person whose mental condition we are to determine, the moment is an extremely anxious one, if consciousness remains unclouded, whether he is to be permitted to return to his home and family, or is to be consigned to an insane asylum, toward which he may have absolute repugnance. To err here is a sad, a lamentable mistake; and yet how greatly we are troubled at times to decide what is right and duty. Moreover, the lashings from the tongue and pen of these and their equally insane, though still at large, companions, to which we are often subjected, are to the timid, an unchained lion in the path, almost entitling them to pardon if they shrink from the encounter.

Among those who dwell in the border-land of insanity, are the geniuses, the wonders of the age in which they live; the eccentric, who rarely see or do things in common with their fellows; females at puberty, and during adolescence, those who may become hysterical or hypochondriacal; those suffering from mental disturbance incident to pregnancy and puerperal conditions, and during the period of lactation; the weaknesses and peculiarities of age; those who are susceptible to hypnotism, which is but another name for mesmerism and somnambulism; that spiritualism which manifests its presence in seances, table-tippings, and disease readings; the faith-cure delusionists; Salvation Army preachers and their noisy followers; and sometimes, though less frequently than the physiologist or pathologist might reasonably expect, the habitual inebriate. There may be hope for this class if early and careful attention is given; at the home if the conditions are favorable, though what is usually much better, care and treatment in a kind and intelligent insane hospital. In this there should be no delay; for like any other disease of the brain "time is the essence of the contract"—so far as relates to hope.

Dr. Hammond's classification of insanity will be followed in this paper, though time and space will permit little more than intelligent definitions. These have been grouped into Perceptual, Intellectual, Emotional, and Volitional insanity; Mania, General Paralysis, Idiocy and Dementia. There are other phenomena of insanity which enter more or less into these general groupings. These are illusions, hallucinations, delusions, incoherence and delirium. "Illusions are false perceptions of real sensorial impressions. They are not always indications of cerebral disorder; in fact they are common to most of us. Hallucinations are false perceptions without material basis, and are centric in their origin. They are always evidence of cerebral

derangement, and are common phenomena of insanity. A delusion is merely a false belief. It is not a test of insanity, as most lawyers and many physicians believe. If it were, one-half the world would be trying to put the other half in lunatic asylums. A person may have illusions, or even hallucinations, and be conscious of the fact. These, therefore, may be present without insanity; but when they are accepted as true, they become evidences of insanity. Incoherence is a prominent feature of chronic insanity. Delirium may be present in certain diseases which do not ordinarily cause insanity."

Perceptual insanity constitutes the primary form of mental aberration. Its appearance may be sudden, or illusions and hallucinations may be its prodromata. Their presence demands careful consideration and prompt attention. Intellectual insanity is usually preceded by illusions and hallucinations, though it may develop suddenly, and be the result of perverted thoughts. Persons thus afflicted may reach old age with but little mental disturbance, unless some exciting cause awakes its slumber. Emotional insanity may be produced without discoverable cause, or ability to disclose motives. This form of insanity is complex and varied. Volitional insanity is a dangerous form, as the will no longer acts in accordance with the intellect, but yields to every morbid impulse. In mania, both acute and chronic, we often find a degree of cunning and self-control which misleads the average mind as to the nature of the malady; though as a rule acute maniacs lose all sense of decency, become filthy in their habits, and obscene in their language. "Acute mania is not suddenly cured; but runs a definite and allotted course."

General paralysis is usually fatal. It may make its appearance at the time insanity manifests itself, or it may precede or follow it. Little can be done to relieve it; and nothing, so far as the writer knows, to cure it. In idiocy or dementia the intellect is impaired or destroyed. "The idiot may be slightly elevated, mentally, by systematic and appropriate education," though little progress should be expected. "Dementia in a large majority of cases is the result of an acute attack of insanity, or an incident of old age." It is a remarkable phenomenon that the tendency to mutual derangement, like the form, features, and general characteristics of the individual, often skips a generation. Especially is this true of the descendants of those who have suffered from nervous diseases. The oft repeated declaration that insanity is on the increase, owing to a higher mental culture or heavier business strain, may possibly be true; and yet the per cent, if any, is much smaller than we may think. The increased numbers in our hospitals and asylums afford no correct data for an affirmative argument. Statistics show a slightly increased per cent of insane males over insane females; and that insanity is most likely to become manifest between 25 and 45 years of age.

"The symptoms of mental diseases," says Dr. Griesinger, "consist only to a small extent of definite, isolated, and unmistakable morbid appearances, and never in any case of directly palpable and physical signs." The same profound writer also says: "Disease may obscure reflection and weaken the freedom of the will without external symptoms of mental disturbance." The essential and usually prominent symptoms of mental aberration are physiognomy, gestures, words, and actions. The eyes may aid us in diagnosing "many types of melancholia, some cases of insanity, of pubescence, and many of katatonia," although they do not always impart the mental information we might reasonably expect. "Electricity will often aid us in uncovering the malingerer, feigned epilepsy, motor paralysis, and anesthesia. Few malingerers know enough to simulate hemiplegia or paraplegia without detection." The same is true as regards dementia.

The program for this session shows a large number of papers in this section; consequently, after discussing Guiteau, the great national criminal, a prominent dweller in the "border-land of insanity", whom the writer had an opportunity to meet and converse with at Washington, upon the second day of his great effort for a new trial before the court *en banc*, this paper will cease to inflict you. The writer is not unmindful that the views he may present may not accord with those which may be entertained by many present; nevertheless they are his own, and they are sincere. They were formed not only by a careful reading of the history of the case, but by observation and conversation; and were confirmed by the tragic ending of the criminal. The conflicting opinions of alienists, before, during, and since the trial, almost overwhelm with doubt whether a correct conclusion can be reached in such cases.

The reasons given why the criminal should be executed, by the experts for the prosecution at the trial, and by some of our medical journals were, that: "The prisoner's crime was the act of a vicious nature, congenitally bad and erratic, perhaps, but made worse by self-indulgence and the unchecked promptings of a supreme egotism." These appear to the writer entirely inadequate to justify such conclusion. He understands from actual study of the insane and from standard works upon insanity that there are lunatics "congenitally bad and erratic," whose "supreme egotism" is but a manifestation of insanity; not "produced by self-indulgence," but inherited. In the writer's opinion Guiteau's mental condition was that of monomania—the "intellectual insanity" of various authors. There was marked hereditary taint in the family. Two uncles and two cousins died insane. The father was peculiar, displaying abnormal religious views. The mother during gestation had meningitis from which she never fully recovered. Two children born subsequently were deformed; one with a cranial, and the other with a cardiac malformation. One sister suffered from *petit mal*, and a brother from convulsions in childhood; while another

sister eight years of age, at the time of the trial was suffering from some obscure mental disorder.

Guiteau was carefully trained in youth and given a fine education. His surroundings were pleasant, and he was reared among the best influences ; nevertheless, " he was always wild and erratic, morally and intellectually." His language and deportment in early manhood were such as to attract the attention of a people so eccentric and peculiar as were the Oneida community with whom he lived for some years. " His mental aberration, like that of the monomaniac who attempted the life of President Jackson, assumed a political cast." He imagined himself entitled to high political honor, and distinguished personal favor, for valuable services rendered, and the words attributed to Marshal Villars : " Defend me from my friends ; I can defend myself from my enemies," applied with peculiar force to him. To the writer, the entire history of that great trial shows him insane, as did his doggerel speech upon the scaffold. His outbursts of emotions, his frequent interruptions, and his violent attacks upon witnesses, were manifestations of insanity, strong and convincing. The verdict which pronounced him sane, or at least amenable to criminal law, was little if any more intelligent than the one returned by a jury of a Chicago county court a few years since in a trial for insanity : " That her disease is of three years duration ; that the cause is heredity ; and the disease with her is not heredity."

" Guiteau had no moral sense in the true meaning of the term. His face and skull were markedly asymmetrical, the asymmetry extending to the pupils, one of which was larger than the other, evidently congenital." His claim that he " was inspired by Deity to remove the President, and, therefore, in a quasi-legal sense was insane," was but a manifestation of a type of insanity by no means uncommon. Insane literature abounds in such or similar cases. He never manifested remorse or even sorrow, insisting that he had but executed the will of God who would take care of him. The medical testimony in his case was so conflicting, that, like many others in the profession, the writer greatly desired to see and converse with the criminal in the hope of being able by personal examination to reach at least an inferential conclusion as to the mental condition of " the great moral monster of the age." In obedience to public clamor many visitors, including congressmen and senators had been turned away the day before ; and upon that day all had been excluded. It therefore was only because the writer was a physician, and possibly an Iowan, that Col. Corkhill, the United States attorney, himself an Iowan, gave a letter of introduction to Gen. Crocker, the warden, permitting a visit and conversation with the noted prisoner, who was thrice locked in.

When Guiteau's cell was reached he was eating lunch, apparently as unconcerned as though in a parlor of his own, with the earth and all it con-



tained at his command. The warden apologised for calling upon him while eating. He arose from the table, courteously excused the interruption, wiped his hands and approached the wicket, conversing as cheerfully and unembarrassed as though about to meet an old friend instead of an inquisitive visitor. His appearance, demeanor and speech were so at variance with anticipations, that impression declared him sane. But when he came near, affording an opportunity for close inspection, and entered into conversation, his manner became vacillating ; and as he presented his photo and requested its purchase, alleging it to be his only way to raise funds wherewith to defend himself, his language became incoherent, manifesting unmistakable evidence of insanity. His countenance had a dull and dreamy rather than a vicious look, however much of the hyena he might exhibit when in anger. Upon return to the city, in response to the query from the colonel : "How did you find him?" the question was asked : "Colonel, don't you know that Guiteau is insane?" The reply came quick and sharp : "I don't care whether he is sane or insane ; I'm going to hang him ;" and hang him he did—much as witches were hung in Salem.

In summing up the testimony in the Guiteau trial, Dr. Hammond said : "I have no hesitation in asserting that Guiteau is the subject of reasoning mania, and hence a lunatic ; and that there is not an asylum under the charge of any of the medical experts for the prosecution that does not contain patients less insane than he." With this fresh from his pen the doctor uses the following strange words : "Let Guiteau suffer the full legal penalty for his crime ; but let him be executed with the distinct understanding that he is a lunatic deserving punishment"—because, "having knowledge of right and wrong he should have controlled his morbid impulse." If a knowledge of right and wrong is the hinge upon which crime is to swing, many should be removed from our insane hospitals and insane asylums to the penitentiary, or swing from the gallows. This dictum, however, was exploded fifty years ago, and a more intelligent civilization, founded upon cerebral pathology, has generally taken its place.

Volition is as much a faculty of the human mind as reason ; and in the penal code should receive equal consideration. If the will is impaired the power of choice is wanting, however clear a knowledge of right and wrong. Hence, to assert that "knowing right and wrong Guiteau should have controlled his morbid impulse," evinces as little reason as to assert that one afflicted with phthisis should not cough. The assumption is equally absurd that if able to change his purpose under certain circumstances the mental aberrant is always able to do so ; or that having mental ability to plan with shrewdness and execute with skill will justify full punishment for crime, even if the criminal is the subject of "reasoning mania." That Guiteau should have been sequestered for life, years before committing his

heinous crime, as should many of his ilk now at large, few will question ; but that with every appliance at hand for sequestering him beyond the power of doing further harm he should have been hanged, has never appeared to the writer justifiable or politic ; especially as his death could in no way atone for the great crime, neither would it deter others like himself from its repetition under the same or similar circumstances.

#### DISCUSSION.

DR. WAPLES : *Mr. President*,—I desire to make a few remarks of a rather desultory character, relative to the papers on insanity that have been presented. They may seem somewhat mystic because they encroach on the border-land of insanity, and I wish to give to the younger members of the society who have been commissioners of insanity, which I have been for some ten or fifteen years, and Brother Robinson fifteen years, or ever since the law has been adopted, a sure test—a French test—for insanity. It is a test that has been followed by the Dubuque board for a great many years. It relieves the topic of a great deal of cumbersome details. A lady waited on an eminent French physician and said to him, "I want to get out a commission against my husband ; he is insane." He says, "Why do you think he is insane?" "Why," she says, "He comes home at night at 10 or 11 o'clock and goes into the pantry and eats eight or ten mince pies before he goes to bed." "Why," said he, "That is no evidence of insanity." "Well," she said, "Other nights he comes home and kisses the hired girl." "Madam, that is not insanity. The first is bulimia; he eats too much. The next is light emotional insanity. Now, if he should come home and kiss the mince pie and eat the hired girl, that would be insanity." The trouble that I had as commissioner of insanity in the consideration of monomaniac cases arose from an inability to determine when the cases were safe to return to their homes. We had one or two noted cases in Dubuque, where a murder was nearly committed by a party who acted from a delusion that he had communicated to him three years before ; one of those cases of chronicism described by Brother Hill.

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#### HOSPITALS FOR EPILEPTICS.

P. J. FARNSWORTH, M. D., *Clinton*.

It is not my purpose to enter into any dissertation on the signs or symptoms of epilepsy or the causes that produce it, but to call the attention of the society to devising some measure of relief for this unfortunate class. It is an affliction most painfully familiar to all of us. The results of the last census are not yet so far tabulated that the number can be given for our state, but we consult our own recollections in our own circle of practice, we can readily admit that there are one and six-tenths in every thousand peo-

ple, as stated by some authors. In our insane hospitals one-tenth of the inmates are epileptics. Some of them hopelessly chronic, others only temporarily insane. In many cases those out of the hospital are subject to brief madness, some to periods of imbecility and others have homicidal tendencies at times, yet for prudential motives are kept at home, but principally because there is no place to send them.

The condition of most of those out of the hospitals is more distressing than those cared for there. The fit which is always impending incapacitates them for useful employment, and is also a source of terror to their friends, to whom they are a constant care. The spasm comes in any unguarded moment, and they fall on sharp instruments, into the fire, or the water, and in moments of frenzy do injury to others.

Death has fewer terrors to the beholder than the sight of an attack of epilepsy; this shock oftentimes leaves its lasting impression on children or pregnant women and sometimes is even taken up by imitation. Sievking, speaking of its prevalence, says: "Epilepsy appears to belong to all climes and all countries; it occurs in the early history of mankind and it prevails at the present day among the untutored savages as among the most cultivated of civilized society; it startles the mother from the security with which she hangs over her beloved infant; it affrights the lover trusting in the future happiness promised to him by his betrothed; it warns the son and the daughter of the mutability of things when they see a parent whom they thought healthy, struck down by the convulsion paroxysm. Epilepsy spares no condition, age or sex."

It is not a fatal disease; it is one that often makes a long life miserable; its results are oftentimes worse than death. From some carefully compiled tables it is shown that four-fifths become deranged sooner or later, a part become imbecile, a part preserve their reason, but what is reason at such a price?

At a meeting of the American Medical Association, in 1886, the subject given for discussion before the section of medicine, was epilepsy. Most of the leading medical men of the country took part in it. It was continued for more than two days. A country friend, a physician from Iowa, said to me, "I am deeply interested in this subject for the reason that I have a sister who is an epileptic. I have followed closely the whole discussion and have learned nothing new either in regard to pathology or treatment. A few traumatic cases may be operated on, care and hygienic remedies may relieve some, and the bromides cure a few or palliate the disease; the greater part are left to hopeless misery."

We are not to despair of yet finding a method of relief because the majority is so greatly against us. Many of the hopeless diseases of the centuries past have yielded to treatment. The remedy has been found for some, the cause for others, and we have good grounds for hope that we

may overcome this. In the meantime something should be done to make these lives more endurable and to relieve their friends from the haunting fear of injury, and bring them into conditions of treatment that would be effective in a greater number of cases.

It is not many generations since that the condition of the insane was deplorable. They were left to wander about the country or confined in jails or mad-houses, that were horrid in their surroundings. Philanthropy was aroused. Noble men gave time and money to alleviate their condition and now governments spend millions in costly structures and employ the most skilled and faithful of the profession for the management and cure of the insane.

A few years ago a president of this society, a most noble-hearted man, called our attention to the condition of the idiotic and imbecile children of the state. A quick response was given and now the "Home for the Feeble Minded" affords shelter and protection to hundreds of miserable beings where their little intellect is cultivated and their lives made happy, and many a home throughout the land made happier by their removal.

The unfortunate epileptics are greater sufferers than either of the other classes, for the greater part of their time they are in full possession of their senses, and unless they lose their reason altogether there is no home or asylum for them. The insane have hallucinations and day dreams, the feeble-minded only partially realize existence. The epileptic in full possession of his reason knows that at any time he may suffer unutterable agony and terrify all around him. He also realizes that no occupation of pleasure or profit can be entered into, no school is open to him, no profession, no hospital for retirement or treatment is offered him unless it be the alms house or ultimately the insane asylum, or his suffering friends that he burdens. It is a cruel injustice, for in the intervals of attack he may have the highest intelligence, and also a most sensitive nature. He is as capable of instruction as any of his fellows, and he might be capable of self-support and of assistance to others if only opportunities were provided where his weakness could be cared for. Also without doubt a much larger proportion might be cured if brought under proper care and supervision.

A late writer says: "It is estimated that there are a hundred thousand epileptics in the United States, a tenth of a million persons suffering for want of combined medical supervision, education, industrial training and social life, together with recreation and definite physical exercise, suited to their condition. A hundred thousand dead weights constitutes a heavy burden on the state." As a matter of humanity, of social economy, and of public welfare, some provision should be made for this large class of unfortunates. An institution should be provided differing from any hospital or asylum we possess, a retreat provided for people capable of education and enjoyment of life at all times, except in the periods of their suffering.

A place adapted to their peculiar condition. A farm, a settlement, a school, shops and all the various occupations that make up a town. But few attendants other than the afflicted would be required, for teachers, preachers, physicians, lawyers, tradesmen and laborers are found among the unfortunates, and they could carry on the work. A hospital for the time of invalidism, would, of course, be a large feature, but there is reason to believe that the hospital cases would be greatly reduced and many be restored to usefulness, if not full health, and life be made more tolerable for all.

A movement is being made in some of the states looking toward such an object, but as yet nothing has been done. Europe has acted in several countries, Switzerland, France, Belgium and Germany. Near Hanover there is a colony that has a thousand inhabitants, occupying a tract of over three hundred acres. It has houses and cottages, a hospital and manufactories, barns and granaries, a school and a church, and all the appurtenances of a thriving village. All but a few are epileptics, and the community is contented and happy, and is more than a measure self-supporting.

It may be a long time before we realize so much in this country, but a beginning should be made and it might come soon. A place might be provided where people of means could resort and the poor be cared for at small expense to the state, and it might be self-supporting after the initial expense for grounds and buildings. At any cost the place should be provided. It is brought before the society as representing the profession of the state; and it is in our hands and our duty to move toward having something done. No one else knows so much of the number and the suffering of this class.

In the statistics of the late census will be tables of the number of epileptics in the nation. Only the curious student will scan them. The politician will not consider it a matter of popularity, or the statesman think of it as a subject of political economy, or the legislator make it a subject of tax. It will be lightly passed over, perhaps, with a sigh from the philanthropist. It is the physician who comes into immediate contact with this class of suffering humanity that will and can verify the numbers and their significance. If each of us should give a detail of our experience we could, like Hamlet's father's ghost,

"A tale unfold, whose lightest word  
Would harrow up thy soul."

Epileptics have led armies and governed states, while many of them are incapable of doing anything. We can make life to them worth much, and many of them may become useful citizens.

In view of all this it is our duty to make an effort for their relief, and I would call on you as a society to take action in the matter and bring it before the legislature, and on each individual member to use his influence in

his community to make the move a successful one. A bill was presented to the last legislature of New York, which might serve as a model for us. I subjoin a part of it :

"Three persons, residents of New York, possessing expert knowledge of the needs of epileptics and the epileptic insane, shall be appointed by the governor within ten days after the passage of this act, and shall constitute a commission to determine on the manner of providing for the education, employment, care and treatment of all epileptics and epileptic insane of the state, whether in almshouses or insane asylums upon public charge, and also those not under state or county care. Said commission is authorized to select a site to consist of not more than three hundred acres of farming land. To adopt plans which shall furnish provision on the cottage or pavillon system, ultimately for from one to two thousand epileptics. Such plans to include methods of healing, lighting, water supply, sewage, etc., and in addition accommodations for dwelling purposes, to include school-rooms, work-shops, a hospital and outbuildings for agricultural, horticultural and dairy purposes. Members of said commission shall take an oath of office and shall each be entitled to receive the necessary expenses incurred while discharging the duties assigned them.

Section 3 relates to the report of these commissioners to the governor when they have selected a site, who thereupon shall appoint seven managers who shall approve of the plans and let the contracts for buildings and have charge of their erection. Said managers to be appointed and confirmed according to the laws governing the appointment of managers of other benevolent or public institutions of the state.

Section 4 is "that the sum of \$10,000 be appropriated out of any money in the treasury to the credit of the general revenue fund for the expenses of the commissioners and for the purpose of complying with the provisions of section one."

This is the substance of the act presented. It is given merely to show the drift of such action which would require adaptation to our state, and would be easy of modification. Ohio has done something in this direction, of which I have not the particulars. For the sake of this numerous class of unfortunates in our midst, let us take immediate action as soon as practicable to bring Iowa, as she has been heretofore, among the first into the line of a noble work.

## SECTION OF OBSTETRICS AND GYNECOLOGY.

## CHAIRMAN'S REPORT.

J. F. M'CARTHY, M. D., *Dubuque.**Mr. President, and Fellows of the Iowa Medical Society:*

I will not occupy much of your time in citing the many advancement that properly belong to this section, but will leave most of them to those who are better qualified in this field, and who are here with eleven well written papers on as many different subjects.

During the past year no very great advancement over the previous one has been recorded in gynecological surgery.

Since the perineum is so well repaired, cystocele and rectocele so well treated, and all diseased tubes and ovaries have been removed, the great operators have turned their attention in a surgical way to extra uterine pregnancy, which seems to be epidemic; at least one would think so from the great number of cases lately recorded in the medical journals.

On the whole, conservatism has marked itself more indelibly upon the profession the past year than for ten years previously.

It has been clearly established that mastitis is entirely due to cracked and fissured nipples during the nursing period; it is scarcely ever found in women who miscarry, or the one who does not nurse her child. The indication for treatment is quite apparent. In abdominal surgery the drainage tube should not be used unless pus be in the cavity, or when any of the viscera be wounded and the contents escape or are likely to escape from such injury, or when the absorptive powers of the peritoneum are not great enough to take up the decomposed fluids.

The difficulty sometimes met with in making abdominal operations when entering the cavity is the deviation of the linea alba, sometimes one and one-half inches from the median line. This shows the necessity of great care when entering the cavity, that mural abscess may not result. Suppurative peritonitis is a well-established and warrantable condition for surgical interference.

The best time to curette the womb, if it be done for metrorrhagia or menorrhagia, is during the menstrual flow, because at this time the endometrium is congested and the fungosities more easily removed.

Alexander's operation for shortening the round ligaments and attaching the uterus to the abdominal wall, is not all its advocates claim for it. The ligaments again stretch and bring on a similar condition to before, and pregnancy destroys the results of the operation.

A new operation is devised where the body of the womb only is attached to the abdominal wall by silk-worm gut ligature and the liga-

ments not interfered with in any way, the peritoneum is not opened, a staff is in the bladder and the womb pressed against the parietes, the skin and cellular tissues incised and the ligature put through the body of the womb and brought out in the external wound and tied. It is not disturbed for three or four weeks, then the ligature is removed and adhesions are complete.

Without a clear indication the hot water douche should not be used. Massage in some of the pelvic disorders is of advantage.

A uterine elevator is in use which the patient herself can use, but in the hands of the ignorant patient it is a dangerous instrument, for it may produce acute inflammatory conditions. It has been found most useful in sub-involution, displacements with adhesions of both womb and appendages. It is contra-indicated in all acute inflammatory conditions.

Amenorrhoea, following great mental shock or mental depression, or general nervous debility or chlorosis should not be treated locally. Of course blood can be induced to flow, but it is not menstrual blood. Change of scene, electricity, massage and general tonics are plainly indicated.

Thirty-six per cent of all abortions in primiparae are caused by syphilis, and twenty-three per cent of all children dying after viability die from the same cause.

Electricity in gynecology has passed through the various stages of experimentation, and like all other new therapeutic agents it has been overrated by enthusiasts; but now it is settled on a solid basis, and its utility unquestioned. The result of Apostoli's investigations are about as follows at the present time:

The principal value of the constant current is its action on fibroid tumors and endometritis; it controls pain and hemorrhage, and not only does it arrest the growth, but it promotes the absorption of exudates. It should not be used in acute inflammatory or suppurative conditions. It influences the circulation through the development of heat, it is antiseptic and germicidal, and the stronger the current the less likely the return of the symptoms.

The intra-uterine application is preferable, the caustic effects greater and pain much less. For the purpose of curetting and applying caustics to the endometrium, it is less harmful and just as useful, or more so, than the old practice of dilation and curetting.

When diseased tubes and ovaries were known as pelvic peritonitis and perimetritis, it did not appear that all women at all times suffered by their retention.

A frequent cause of dysmenorrhoea is a spasmodic contraction of the muscular fibres of the cervix and in electricity we find the most useful therapeutic agent.



## MEDDLESOME MIDWIFERY.

W. WATSON, M. D., *Dubuque.*

While there are a variety of opinions upon some points and open questions in obstetrical practice, I think few will question the wisdom of leaving to nature whatever she can successfully accomplish, within a reasonable time, without undue suffering, or dangerous exhaustion to the patient. To notice some points in which over-anxiety or the desire to hasten results, leads to meddling, will be my object during the brief time I shall ask your attention.

The physician's responsibility for and care of a puerperal woman in the majority of cases, dates from his call, after the premonitory symptoms have warned the patient and her friends that labor will soon commence. In a very small number of cases will he have been consulted as to the necessity for any preliminary treatment, unless there are some well-marked symptoms exciting alarm. 'Tis not unusual that disturbances of marked significance to the physician are patiently and silently borne by the patient under the impression that, as they arise from the condition, they are to the primipara a part of the new and trying experience through which she has determined to be patient and brave.

That it is well in all cases where we have the opportunity to make inquiries as to the existence of danger from uraemic poisoning, none will question; but I am not prepared to indorse the teaching of a distinguished Professor in Bellvue, "That any physician having charge of a primipara is negligent if he does not make a clinical examination of the urine at least once in three weeks during the last three months." That cases of convulsions occur occasionally that should have been foreseen and prevented is doubtless true; but that such constant and meddling interference as indicated in the above teaching would excite the fears and cause undue apprehension, is also true. In many cases the irritating "false" pains worry and exhaust the patient without making corresponding progress. If we add to this difficulty by oft repeated examinations, producing a dry and congested condition of the passages, and have the case complicated by a rigid os, you have a not unusual condition that nearly every physician has met; if not the result of his own errors, that of the errors of others. There is often a failure to recognize the true condition, and instead of using remedies to assist relaxation or to quiet irritability, drugs are given to stimulate the womb to increased action, or the same result is sought by forcible dilatation of the os, and by premature rupture of the membranes. By impatient meddling we subject the patient to needless suffering, and danger of permanent injury, with good prospects of affording some gynecologist a case upon which to try his skill. Perhaps some may be disposed to consider this an over-drawn sketch; but I can confidently appeal to the older practitioners

present, feeling sure that the majority could respond by detailing cases in which most of these results were found.

Again are such cases found alone in the practice of ignorant midwives? By no means; on the contrary, no small number of cases of injury can be traced to the practice of those who aspire to, and are doing a large midwifery practice, where the result comes from a desire to terminate the labor, so as to be ready for, or perhaps get to another that is being retained, by the promise to be there soon.

I could give the details of a case of a young primipara, who came to me for relief when her child was a month old. The rupture had destroyed the entire perineum, including both sphincters. She was unable to control her bowels, except by keeping them constipated by opium. The labor had been rapid. In reply to questions, she said the doctor gave her three teaspoonful doses of medicine to *help her*. Upon being shown a bottle of Fl. Ext. of ergot she identified that as the remedy she had taken; subsequent statements indicated that the motive for haste was the desire to reach another case to which he had been summoned. By surgical means the injury was partially remedied, when she became discouraged, refused to have more done and through subsequent pregnancies and for nearly twenty-five years has she endured the suffering, resulting from the meddling of one who knew better.

Another form of meddling is the use of instruments, to save the time of the attendant, where nature would in her own good time accomplish the result. That this may be done by the "*expert*" in some *few* carefully selected cases may be conceded; but the large number that subsequently seek relief from the gynecologist furnish positive evidence of the frequency of injuries, many of them resulting from this cause and that previously referred to.

Upon the manner of dealing with the placenta, I am free to admit that according to the views of some I may be open to the charge of meddling. Since meeting two or three cases of alarming prostration from flooding, it has been my practice to aim to secure the contraction of the womb by gentle pressure by the hand of an assistant, until I can separate the child, when I give a dose of ergot and proceed to remove the placenta by Crede's method, aided by traction on the cord, if it gives indications of strength.

While the introduction of the use of antiseptics in obstetrics, especially in hospital practice, and among the filthy poor, has unquestionably lessened the perils of the puerperal state, the more general teaching and strict observance of the "gospel of cleanliness," which has been one of its results, has tended in the same direction. Nearly all good things can be perverted or misapplied so as to be injurious, and this forms no exception; hence may become a source of danger that *can* and *has* produced serious results.

That this has arisen to a great extent from exaggerated views of the danger of septic poisoning, there is no question.

In the clinical thermometer we have a guide, which if closely observed and intelligently interpreted, is reliable and invaluable in apprising us of approaching danger; yet if we assume as some are inclined to, that every rise in temperature is an indication of the necessity of and a justification of a resort to the use of antiseptic injections, we may expose the patient to more serious troubles than those existing, and subject her to needless danger.

That such injections are indicated and of great value in true septic cases, is well established. That good judgment and great care in their use is requisite to avoid the danger that may result, has been fully demonstrated. To illustrate, I will give a brief outline of a case reported in a medical journal, as having occurred to the wife of a physician in this part of our state. She was a healthy, well-developed woman, aged 24, with her second child. The first labor two years before had been rapid, and she had made a good recovery. She had performed her household duties, taken plenty of outdoor exercise, appetite good, bowels and kidneys regular and active. The labor terminated much like the first, without any indication or foreboding of evil. The pains were so rapid and strong that considerable resistant pressure on the perineum was regarded as necessary and made, lest there should be rupture, which did not occur. After the separation of the child an examination revealed the placenta retained by an hour-glass contraction. The hand was introduced, passed the constriction; with slight effort the removal was carefully and easily accomplished; good contraction was secured with but little hemorrhage. Subsequently there were but three or four severe after-pains expelling some clots. Tepid carbolated vaginal injections were used twice daily. The case progressed every way favorably, except that after the fourth or fifth day the lochia became offensive. Up to the tenth day, the bowels regular; urine, normal in appearance and quantity; mental condition clear; appetite good; slept well, was cheerful and happy; milk came all right, and no apparent suppression of secretions.

The evening of the 24th the injection was given in a sitting position over the vessel. After she had laid down she had violent rigors, said she did not feel cold, but shook so violently her husband was compelled to hold her. This continued an hour, and was followed by severe colic diarrhoea, with excessive nausea and vomiting. Her head could not be raised from the pillow without fainting. About three hours from the onset of the rigors she fell into a peaceful sleep, which continued during the night and most of the next morning, when her only expressed desire was for quiet and sleep. There was no pain or soreness in the abdominal region; bowels quiet; temperature but little above normal in the morning; in the afternoon it varied, rising to  $102\frac{1}{2}^{\circ}$  to  $103^{\circ}$ , then dropping one or two

degrees. Pulse rapid, from 120 to 160. When awake she relished a cup of hot tea; did not complain of thirst. She was given tinct. of aconite and gelseminum, alternated with veratrum. At 5 P. M. her mind began to wander; could not articulate distinctly. Soon became totally unconscious, extremities cold, but responded to external applications. Pilocarpin was given hypodermically, producing free diaphoresis, with no amelioration of symptoms. At 9:30 she died. At the close of his report the grief-stricken husband asks: "What was the matter; septicaemia, uraemia, or what?" For the "what" might not "the injection" be substituted with propriety?

## DISCUSSION.

DR. CHASE (Osage): *Mr. President*,—I regard the doctor's paper as an excellent one, and would say that I feel we are sometimes inclined to hasten cases more than is wise, or beneficial to the patient. If the attendant does it for his own ends, this certainly is very reprehensible. I think, on the other hand, we sometimes delay assisting patients, to their injury. There is a medium course, not always easy to determine, but I apprehend that we older members present do less meddling than we did when we began to practice. On the other hand, I sometimes use as aids, instruments, where early in life I waited, to the injury of my patient. I am not inclined to give ergot as much as I once did. I had a few pretty severe results that commenced in "hour-glass" contractions, and the last one I had, some years since, makes me pretty cautious about giving it very much. The doctor states in his paper that after the delivery of the child he is accustomed to give ergot to expel the placenta. I am not in the habit of doing that. Of course if there is entire inaction, no response to proper manipulation externally, I do; but not very often. I am not inclined to make much traction, however, upon the cord. Perhaps one reason why I am not, early in my medical life I was called to see a lady who had been delivered by midwife. She said she found an enormous tumor there after the child came, and examination showed that she had had an everted womb; she had been drawing upon the cord until she had everted the womb absolutely. I have seen a number of cases where this is pretty nearly done. My conviction in regard to the case cited is that the injection caused a large portion of the trouble.

DR. SILL: *Mr. President*,—I believe if the voice from the grave could come for the purpose, we would hear the title of that old song, "Listen to my tale of woe." I think, as the brother just on the floor has said, that chloroform is a good thing. The obstetric forceps is a bigger thing, and death is a still bigger thing. I believe that the best that we can do is to remember that passage of scripture, which says, "Watch and wait"; help when the need comes. I don't think that my skill as an obstetrician depends as much upon the number of times I have used the forceps as upon the

number of times I have not used them, and saved my patient. This meddling is a little too numerous.

DR. C. L. WHITMIRE (Waverly): *Mr. President*,—I suppose a well-built woman in perfect condition, and even our American women, if perfect in every way, and not so much "civilized," in child-birth would be like the savages, and labor would be natural and easy; but the fact is, and it is becoming more and more apparent, and those of you especially who practice in cities will bear testimony as to this, that labors are very difficult in many cases; sometimes on account of distortion of the pelvis; sometimes perhaps owing to a general weakness of the nervous system, so that there are many times when there is a demand upon the physician to do something. When that time comes, we must do; at least that has been my experience. I will admit that ergot has been abused by many physicians, perhaps, when its action was not thoroughly understood. When the os has been closed it has, no doubt, as I know in one case where I was called in consultation, produced rupture of the womb. In that case it was given too soon. But in regard to the use of instruments, when used under the guidance of a skillful hand, they are perfectly harmless; and I am sure that labors have been terminated, not only speedily but safely.

DR. J. F. MCCARTHY: *Mr. President*,—I think the last gentleman that spoke has estimated our American women on the basis of deformity statistics, which do not apply at all. I think that he calculated upon the poorer classes of Europe who are suffering from a rickety and imperfect bony structure, and that he takes his deduction and his midwifery and his surgery from that basis. I have had a little experience in midwifery, and I can say that I have never seen the deformed female pelvis in my life.

DR. WOODBRIDGE (Waubeek): *Mr. President*,—The natural tendency of a womb at term is to rid itself of its contents through the natural channels. But practitioners understand that a perfectly healthy woman with a perfectly healthy child is liable to meet with some accident, in the course of the passage of the child into the world, that is likely to terminate unfavorably to the mother, and it is for avoiding these accidents, if possible, that the practitioner is called in. It is his duty to see whether labor is going on properly, whether any of these accidents are likely to take place, all through the case. As to meddlesome midwifery, it is a terribly indefinite term; it is hard to define what it is. One man hearing that another man has done something to a case and it terminated unfavorably, might say that he meddled, when he was not present at the bedside to know whether he has heard the straight of the case. Now, then, I have had some experience with the rigid os, and I simply wish to say that the introduction of about a three or three-and-a-half grain cocaine suppository will relieve that terrible nagging, dilating pain of the rigid os, and by the time the effect of the cocaine has passed off, a large amount of the rigidity disappeared, and

I have used as high as three in the effort without any injurious results at all. In two or three cases that I have used it, if I had not done so, or used some means to produce softening, there would, I believe, have been rupture of the os. The time to use the forceps is the time when you can relieve the mother, or perhaps save the child, and that has to be determined by the man at the bedside.

DR. MAXWELL: *Mr. President*,—The discussion has not fully answered the question that was asked by the writer of the paper, and also by the stricken husband who loses his wife, as to what was the cause of her death. Dr. Watson suggests that it was the injection. That may have been, and it may not have been. We know that embolisms may take place after any operation in which we have a large clot forming; a portion of that clot may be detached and floated off into the large veins, and from there to the heart, and suddenly cause troubles similar to those the doctor described as taking place immediately after the injection, so that I would not say absolutely that it was the injection that did it. It might have been an embolism of the clots that had formed in the sinuses of the uterus, which were loosened and immediately brought on this condition of collapse; this chill. As to the other part of the discussion, as to when and how we should use forceps, I believe that it must be determined by the intelligence of the physician in attendance and the conditions that present themselves. As to our friend's scripture here in regard to "watch and wait", I don't know whether that is in the Koran or not.

DR. SMITH (Charles City): *Mr. President*,—I do not think there is any pernicious sort of meddlesomeness half as bad as the one that watches and waits and does not determine the presentation until it passes the point that he can act upon it favorably.

DR. SCHOOLER: I have attended occasionally a case of obstetrics in the last fifteen or twenty years, and on this question of meddlesome midwifery, I am inclined to think that the most meddlesome part of it is the attempt to rectify the presentation, or what has been specified as rotation by the different speakers here, and I think it would be of considerable interest and considerable of a revelation to themselves, many of them, to know how many cases they have attempted to rotate in the wrong direction. For my part I have never been able to determine very much about the position of the presentation until the labor had progressed pretty well and the child was practically born. So far as determining the anterior and the posterior fontanelles by the sense of touch, the heel would have answered every purpose as well as a head presentation so far as I am concerned, and I am inclined to think that the average practitioner, or even the obstetrician, that dwells so beautifully upon these landmarks and describes the rotation so gracefully, can tell very much more about it than I can. When I can see the child's neck or the form, or get a view of the color of the eyes, I am pretty certain in which direction the rotation has occurred; not otherwise.

DR. DUNKLEBERG (Fredrika): *Mr. President*,—I have not had anything like the experience the gentleman just on the floor has had, but I think the case is rare when the man ought not to be able to discover the presentation by the fontanelles. In regard to the use of ergot in labor, I believe Playfair says that it is the custom with him to always give a dose of ergot, and in something over two hundred labor cases—I was counting them up on my stub the other day from curiosity—I don't think there have been half a dozen that I have not given a teaspoonful either before or immediately after the second stage of labor, and I should feel very bad if I had a case of post-partum hemorrhage and hadn't given that dose of ergot. I never have lost a woman in these cases; I never have lost but one child, and that was born prematurely; I never have had a case of hour-glass contraction in my own practice. I have been called to see two where, in one case, the cord had been pulled upon so strongly it had been entirely broken off, and I question whether the use of a dose of ergot given after the second stage of labor, will produce hour-glass contraction, without pulling on the cord. I have met quite a number of men, in consultation, that I have heard harp about the abuse of ergot, yet about the first thing they suggested was, "Let's give a teaspoonful of ergot."

C. E. RUTH (Muscatine): *Mr. President*,—I started out with the idea that ergot was necessary, vaginal injections were necessary, asepsis was necessary in midwifery practice. I used ergot in the first year of my practice, and vaginal injections in every case that I could induce them to use them. I had severe after-pains in almost every case. I had placenta retention in my first case; hour-glass contraction, so-called. And in the last six years, I believe, I have never given a dose of ergot. In the separation of the placenta I have had rather sharp hemorrhage once in a while; not within the last three or four years, because I deliver the placenta almost immediately, seldom even waiting to tie the cord and separate the child, and I am not in any particular hurry about getting the child away, or even getting the placenta away; it does no harm to leave the child lay in bed a few moments and take my time to delivering the placenta before making intersection of the cord at all; but I have not anything like the trouble with severe after-pains with the patients that I used to have. I do not fear hemorrhage at all, when I am done, at any rate, because I believe that a little friction or pressure over the uterus, and if necessary, one hand inside will do more for the patient than the ergot ever will. That is, it is more certain to accomplish the result that you may desire. And so far as the cause of death in this patient Dr. Watson spoke of is concerned, I can not understand why an embolism did the work, unless it was septic. If the injection produced death it must have been from the removal of some protection that nature had thrown over a wound or laceration, or from the dislodgement of a septic embolism.

DR. SANSOM (Tipton): *Mr. President*,—In the discussion of this question of meddlesome midwifery, up to this present time, I think that nothing has been introduced but what must be settled by each man at the bedside of the patient, as he deems best at that time. If there is no objection, I will digress a little on this matter and give you a suggestion that I do not find in the books, and that I do not know whether it would be advisable to follow or not. Not long since I was called in consultation in a case of placenta previa. It was well marked; central lower position had been felt forty-eight hours previous to the time the labor commenced; very little hemorrhage, comparatively, had taken place, and after examining the case we concluded to wait, feeling that not sufficient hemorrhage had resulted yet to produce any danger in the case. We waited until the uterus was dilated—or the os was dilated sufficiently to introduce four fingers—then, while under the influence of chloroform, the doctor introduced his hand and performed version and delivered the woman. What struck my attention in this case—the point I wish to bring up—is this: Once before I had a case of placenta previa. When I had reached the bedside of that woman, the blood had run through the bed and across the floor. I thought I should lose the mother, but by determining the position I delivered her in fifteen or twenty minutes and saved her life. Now, I traced these two cases, the one in which I had a severe hemorrhage, the other in which I had none, and the question came to my mind, why is it that one condition of cases will bleed and the other not. I could determine the matter in this manner: This child was dead for forty-eight hours; the uterine sinuses were filled with clot blood as a result, cutting off the circulation between mother and child; the other child was alive at the time of the beginning of labor, the sinuses free and open, the blood discharging full and free, pouring the hot blood over my hand. The question arose in my mind as to what should be the diagnosis, knowing it would endanger the life of the mother and always, invariably, the life of the child, would it not be best to destroy that child before labor comes on, and in that manner prevent the hemorrhage that would come on at the time of birth? I offer the suggestion for the society to think of.

DR. SMITH: *Mr. President*,—I did not expect to take part in this discussion; thought I would rather listen, but there are one or two points I would like to allude to. In regard to the removal of the placenta I sometimes wait half an hour or an hour until the pulsation ceases in the cord. I did not do so at first. I generally tied the cord as soon as possible and had the baby put away; and I sometimes found wise women put it down on the cold floor and nearly destroyed two or three children, and after that I concluded to take that in charge; meddlesome or not meddlesome, I would put the child away some place and not have the cord cut so soon. Since I have waited—I have done it, probably, in the neighborhood of



thirty years—a woman does not have near so severe after-pains. That is one thing, and the child does not lose weight so much; is not weak; considerably more blood in the child's system, and the uterine circulation ceases gradually instead of suddenly. In regard to uterine hemorrhage, I seldom had trouble, unless I was foolish enough to give ergot at the wrong time so as to produce "hour-glass" contraction. I have discovered that ergot was a good thing and have used it some; sometimes do a little yet, just before or just after the birth of the child. If I find an inclination to more hemorrhage than is safe, I generally give it, but hardly ever do it on any other condition. In regard to the sudden death of the woman spoken of in the paper, I am inclined to think it was air passing into the uterine sinuses, and from there to the heart. The *post mortem* generally shows the sinuses open. During the past year I have seen one sudden death. The case which I saw was a girl some five or six months along, and there had been some mischievous interference. I think this threw some light on the matter. She, when alone in the house, took a Davidson syringe. I saw her as she lay on the floor, and showed evidences of it from the fluid in the chair and from all the appearances. She was lying on the floor dead, with the syringe partially on one of her thighs. Knowing that there was some interference in the case I thought it was a good case for the coroner, and on the *post mortem* found air mixed up with the blood in the heart, as there always is in such cases. Probably through probing the womb and passing the point into the uterus, a little air passed in, and going to the heart, produced death almost instantly.

DR. WATSON: *Mr. President*,—There are one or two points that I would like to explain, which I think have been misunderstood. My friend, Dr. Chase, misunderstood me in regard to the use of ergot to expel the placenta. I never gave a dose of ergot in my life to expel the placenta, but after I had had two or three patients pulseless within three minutes by loss of blood, I learned to be cautious, and to give a dose of ergot when the placenta is expelled to aid in the contraction of the womb, and I do not think I do run as much risk as my friend over the way, who speaks about putting his hand into the womb to make it contract. I have done that; I have put chunks of ice in when ergot would not act, but I gave the ergot. I do not think I have met with a case of hour-glass contraction in twenty years. As to the use of ergot to assist the labor, that is something I have been for many years without; I very seldom do it. One gentleman spoke of chloroform for relaxation. If I ever go to a case of labor without a bottle of chloroform in my pocket it is a mistake; I don't do it intentionally. But I want to say that women are, in one respect, a good deal like men; not quite so much so. That is, they are human, and you give a woman, in the tortures of labor, chloroform, and you have got a hard heart if you can stop it, harder than I have got. I have got a pretty good face, but I can't do

that; consequently, I am very cautious when I begin my chloroform, but I always have it and if I find, as the gentleman says, that I have a rigid case, if I can not reduce it by some ipecac, I give, perhaps, the chloroform. I did not criticise the use of instruments in the interest of the patients; I criticised the use of instruments in meddlesome midwifery in the interest of the attendant, the interest of the attendant to save his time. If he cannot afford the time he can step out; had better step out and not accept the money. That is my doctrine on that point. Now, another gentleman referred to the fact that he believed every case of labor in a healthy woman would get along by itself if given time enough. My friend, I once had that same opinion. I can recollect a case over thirty-five years ago that I was called to on Sunday morning, and I delivered her Tuesday afternoon with forceps, and the head had no more of a fontanelle, or anything that you could trace, than mine has. And I made up my mind that I might have waited for a great while. That woman was healthy and strong, and, in connection with that, I might make one remark that is entirely foreign to the subject, but it may be of use to some of you. I thought it was to her. The woman was a Catholic and objected very strongly to the use of instruments or anything of that kind. I said to her: "If you find yourself in trouble again I would suggest that you consult a physician in time, during the process of your pregnancy." A few months afterward she came to me and said she was in trouble; her menses had stopped. I made a prescription for her with a view to prevent ossification; I thought I would run the risk of soft bones rather than run the risk of having them as hard as they were before. I prescribed hydrochloric acid; she took it in large quantities through her pregnancy and I urged her to have labor brought on a little prematurely, which did not suit her; the consequence was she gave me the "go by" and called on somebody else. I asked how she got along, and the doctor told me he was there only half an hour. I asked him how the head was, and he said it was unusually soft. Now, regarding cocaine suppositories the gentleman spoke of. That is precisely in the line of what I advocate. I am talking against meddlesome midwifery. If cocaine suppositories will relax a rigid os, I say, go on; that is the very thing. And in regard to the cause of death in this case, I only suggested that question. I did not intend to be understood as expressing an opinion; I only suggested the question as to whether there might not be trouble in the injection; but I must say that I think Dr. Maxwell's theory of embolism will hardly fill the bill.

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#### OPERATION UPON THE GRAVID UTERUS.

J. R. GUTHRIE, A. M., M. D., *Dubuque.*

This paper does not propose to discuss the practical question of "Operation upon the Gravid Uterus" in all its varied phases, or to follow out the

many interesting topics which would of necessity grow out of such discussion.

Even if time and opportunity were at command, the limit of this paper strictly forbids anything like full treatment of this interesting subject.

To many the title, "Operation upon the Gravid Uterus," speaks only of a gross blunder upon the part of the operator ; suggests to the mind failure in diagnosis ; this, and nothing more. To others, while it may or may not be a confession of sins of omission in diagnosis, it at the same time gives him food for thought and abundant material for future investigation.

It likewise throws some light upon the physiology of pregnancy, illustrates how carefully nature protects the product of conception during legitimate procedure, and demonstrates the practicability of operation hitherto condemned. It is admitted as true that occasionally an operation has been performed upon the gravid uterus by reason of a mistaken diagnosis; and it is also true that progressive minds have profited by these mistakes until to-day it is an established fact that such procedure is recognized and destined soon to be sanctioned by the advanced judgment of the profession, under suitable circumstances, as a justifiable operation. Not long since such operations were entirely unheard of, and we search medical literature in vain for their record. After a time, in the literature of medicine, we find "Operation upon the Gravid Uterus" mentioned, in reference to attempts at replacement of the prolapsed uterus containing products of perception, and that such "handling of the gravid uterus was possible with a continuance of the pregnant state." The wise profit by mistakes. The prudent man learns much by his own mistakes.

It was formerly held by the best minds in the profession that severe injury to the gravid uterus resulted in destruction of the products of conception, but gradually other views gained ground, until now the generally accepted idea is that almost any injury may happen to the uterus itself without miscarriage, so long as the contents are left undisturbed. Literature is fertile in cases of severe injury to the uterus, either inflicted by the female herself or by some designing party, and these injuries failed to accomplish the desired result.

A case is recorded of a female attempting abortion upon her own person, using a wire hook by means of which she punctured the body of the uterus. The womb was severely lacerated and alarming hemorrhage took place, calling for surgical interference, and yet the product of conception continued undisturbed in its physiological course, although the patient came very near death as a result of her foolish act.

Accidental puncture of the uterus in abdominal surgery is by no means infrequent. An interesting case of puncture of the uterus was related and formed the topic for discussion at the regular meeting of the New York Obstetric Society, November 25, 1882. In this case the operator in remov-

ing an ovarian tumor accidentally punctured the womb with a trocar. The wound was treated antiseptically, sewed up, and miscarriage did not occur.

At the eightieth annual meeting of the American Gynecological Society, held in Philadelphia in 1883, the above case was the subject of an interesting paper and discussion, the gist of the whole matter being that operations upon the gravid uterus may be performed without injury to the contents of the womb, and that abortion comes from an injury to the contents and not to the wall of the uterus.

In the *British Medical Journal* (1889), Mayo Robson relates five operations performed by him during pregnancy, one of which was upon the uterus, the removal of a fibroid from the cervix utri. No miscarriage took place in any of these cases, and but little shock. The safe removal of other growth from the pregnant uterus is recorded.

Before the Obstetrical Section of the Ninth International Congress, Dr. Doloris, of Paris, reported a case upon which he operated for cure of double laceration of the cervix. Operation was successful, and did not interfere with pregnancy.

A few similar cases are recorded in the literature of the subject, but perhaps they are not so frequent as to render entirely monotonous the recital of the following case, occurring in the practice of the writer during the fall of 1889. Patient, Mrs. A. M., married at age of 34 years, was healthy, and became pregnant shortly after marriage, and was confined in February, 1886. Upon examination presentation was found normal and the os very rigid and unyielding. Dilatation was tardy and labor extremely painful. Suffering was so intense that chloroform had to be administered. During unavoidable discontinuance of chloroform a pain came upon her, and she threw herself violently upon the floor. Terrific pain followed, and rapid descent of a large head caused a bi-lateral laceration of the cervix, and a little later laceration of the perineum. Patient made a rather tardy recovery and continued to suffer from a lacerated condition of the parts till suffering became so great that she finally applied for relief in August, 1889.

Upon examination, a bilateral laceration of the womb was easily discovered. On the left side the tear was well up to the vaginal attachment and on the right side the tear was only a trifle less. Lips were strongly everted, red, glazed and much swollen. Operation was advised, but being very near her next expected monthly it was postponed till she should be well after her period. After this period, and about the time set for operation, she was taken with a mild inflammatory attack accompanied by bladder trouble from mechanical causes. She again became unwell, and as soon as practicable (Nov. 22, 1889,) with the assistance of Drs. Connolly and McCarthy, the usual operation for lacerated cervix was performed, being careful to pare well the edges, removing all the cicatricial tissue. Silver wire was used in suturing and some was removed 14 days later. when the opera-

tion was found to have been successful, and good union was obtained throughout all the uterine structure. Some ten days later perineum was repaired, after which she was up and attending her household duties, and for a short time slipped from observation, but not long, as the husband came to the office saying he wanted something for his wife, as she bloated badly after meals. He was given an excellent prescription for flatulency, and returned later to speak of its great curative power. He soon returned, however, and I was asked to visit his wife. Examination surprised me by the revelation that our patient was pregnant, probably in the fifth month.

Patient completed term of pregnancy and was delivered at full term by Dr. Connolly of a healthy female child, on April 17, 1890, five months after the operation for lacerated cervix had been performed upon the gravid uterus. In other words, the operation was performed upon the uterus nearly at the fourth month without one unfavorable symptom.

The doctor informs me that the os dilated normally and that not the slightest laceration occurred.

Laceration of the cervix is one of the most fruitful causes of non-criminal abortion. It has long been so classed by writers. Of late, by competent observers it has been assigned to a still more important place as a causative factor in this condition. In bilateral laceration there is another cause which is present in severe cases. When continuity of the uterine tissue is broken, swelling here, as elsewhere, takes place in direction of least resistance, and eversion of lips takes place. This eversion becomes more marked, too, because of the attachment of the uterine ligament separating still more the edge of the wound. Disturbance of the circulation, too, plays its part in augmenting the difficulty. In severe bilateral laceration, with eversion of the lips and mechanical interference with circulation, should pregnancy occur, still more aggravating these conditions, it will in a large majority of the cases terminate by miscarriage.

In view of these unquestionable facts, unquestionable both from a clinical and anatomical standpoint, and in view of the baneful effects, often incurable, of miscarriage, is not the advisability of this operation to prevent this mishap, worthy of thoughtful consideration.

In the case given it is firmly believed to have prevented a case of otherwise unavoidable abortion.

#### DISCUSSION.

DR. SILL: *Mr. President*,—I am glad to hear the paper, but it seems to me that that paper explodes the idea that it is impossible for a lacerated uterus to become impregnated. I know that some of our authors say that it is impossible.

## THE USE AND ABUSE OF THE PESSARY IN UTERINE DISPLACEMENTS.

J. W. LA GRANGE, M. D., *Marion.*

The use of the pessary in uterine displacements is a subject of much importance to the gynecologist. It is one that is very little understood by the general practitioner. For the last eight or ten years I've been very much interested in its use ; and my object in bringing this subject before this association is, that we, as practitioners, may know more about this little instrument, which, if properly used, is capable of giving great relief to those who are suffering from some of the forms of uterine displacement. It is a uterine splint. Like all splints or apparatuses that have been devised to hold displaced organs, or bones, in their natural position when replaced, they must be properly adjusted and moulded to each case they are intended for, if they accomplish the desired object and give the needed relief. Each pessary must be fitted to the vagina, and not the vagina to the pessary. No two displacements are exactly alike. Nor are any two vaginas exactly alike ; consequently, the same pessary will not fit the two cases any more than a set of artificial teeth will fit two different mouths. The pressure must be equally distributed to all points ; if not, just like the artificial teeth, too much pressure at any one point will cause trouble, while, when equally distributed, they will be worn with comfort, and accomplish the desired object.

There are many kinds of pessaries ; their name is legion. Most of them are useless. Few can be used for good when skillfully employed. All are capable of doing much harm, when not. As a rule the simplest, and smallest kind should be used ; those that will best relieve the kind of displacement for which they are intended. This instrument has its advocates among most all leading gynecologists, both at home and abroad, claiming gratifying results from their use ; while on the other hand there are some who condemn its use. One uses this strong language: "I've had no experience with pessaries, at least with their introduction, but I have had a long experience with their removal. I do not think that there is a day when I am at home, and in my office, that I do not have the privilege of taking out a pessary. I have removed pessaries of all forms and sizes, and pessaries introduced by the most distinguished men of the profession." While attending the New York Polyclinic this last winter, Dr. Gill Willie, one of the gynecology professors, spent one hour in condemning the pessary, demonstrating its evil effects by presenting to the class a patient from whom he had removed, the day before, a Gehrung's anteversion pessary, which the patient had worn twelve years for the relief of anteversion, complicated by cystocele. The injuries inflicted upon the parts were serious. There was a large fistulous opening into the bladder. The vaginal walls were thickened, and roughened. There were ulcers, and old

cicatrices at different points, both in the vaginal walls and the cervix. In fact the abuse of this instrument had done a great amount of damage to this poor, hard-working woman. We might give the testimony of others equally strong, condemning this instrument in the treatment of malposition of the uterus. As far as I am able to ascertain, the weight of testimony is largely in favor of their use. This testimony is based upon a large practical experience.

From my limited experience I know that they have brought relief, not in all cases that I have treated, for I know that I have introduced many a pessary into the vagina that, instead of giving the needed relief, only aggravated the symptoms. Was it on account of the instrument? No; the failure must be attributed to the improper use of it. The pessary, like all other agents used to relieve suffering humanity, is capable of giving great relief when skillfully employed, and *vice versa* when not. But in the hands of those who have clearly in mind the object they wish to accomplish, they do bring relief, and act as a restorative power. There are many cases of malposition of the uterus that cannot be treated successfully without the use of this instrument. They are especially adapted to that class of cases who are not able to come to your office every day, or rich enough to pay you to visit them every day at their home and have a tampon introduced. In this class of cases you mould and fit a pessary properly to each individual case and relief follows. They will tell you so, and they will wear it with comfort, and in nine cases out of ten the only way they will know that the instrument is in the vagina is that the many symptoms are relieved. And while the mechanical supports hold the organ in its natural position, the original supports are given a chance to regain their normal condition. Of course, in every case which presents itself, you must first make use of every means which will assist nature to restore the natural supports by position, tampons, douches, local treatment, general tonics, etc.

But if the case is one applicable to the use of the pessary, you fail in doing your duty if you do not adjust one. What kind will answer the purpose best? As far as my experience goes, what is known as the Albert Smith pessary will meet the indications the best. Next step is the size, and shape. The size may be obtained after the rule laid down by Dr Skene. Carefully introduce the instrument vertically like a speculum, rotating to transverse position after it has passed well into the vagina, with your patient in the Sims position. Then sweep your finger around the outer circumference, and ascertain if the pressure is equal, and if the shape fits the vagina; if not, remove it, and by heat mould it so that it will fit the case as perfectly as a set of artificial teeth do the mouth they are intended for, or a suit of clothes the person they are made for. If so, the patient will wear the instrument with entire relief. It is advisable to examine the instrument daily for several days to ascertain if there is not undue pressure at any

point; if so, it must be corrected. This observation must be kept up occasionally for months. It will be good treatment as the parts contract down, to change the pessary for a smaller one.

From the many cases of retroversion that I have treated successfully in the foregoing manner, I will give the clinical history of but two. They are as follows :

*Case 1.*—Mas. B., age 33, married, always enjoyed good health before the birth of her first and only child. In September, 1887, eight months after her confinement, she came to my office, giving the following history : That soon after the birth of her child she began to suffer from pain in the small of her back, extending up the spine, dragging-down sensations in groins when on her feet any length of time, bowels constipated, frequent desire to pass water, more or less headache, frequent attacks of palpitation of the heart, very restless, nervous and sleepless, suffered much during menstruation.

Vaginal examination revealed retroversion, second degree, no complications. The malposition seemed to be due to a relaxed condition of the natural supports of the uterus.

The womb was easily restored to its normal position, and held there by an Albert Smith pessary for retroversion. The patient has worn it continuously ever since, with entire relief.

*Case 2.*—Mrs. A., age 31, a principara, consulted me in July, 1886, presented the usual symptoms indicating displacement of uterus. Vaginal examination revealed retroversion, second degree, no complications, trouble due to relaxation of uterine supports. Womb was readily restored and maintained there by an Albert Smith pessary ; patient continued to wear this for one and one-half years. I then removed it, as there appeared no further necessity for it, as the natural supports had regained their original strength. The mechanical supportive treatment in the two clinical cases just given was supplemented by medicinal treatment, such as regulating the bowels, correcting the indigestion, a judicious use of the chalybeate tonics, etc.

There is a certain form of retroversion which we as practitioners frequently meet with, that has come on slowly, the so-called "third degree." The fundus lies down in the hollow of the sacrum. The cervix is elevated higher than the fundus. The entire organ is very much enlarged, and partially, if not firmly fixed in its malposition. What use can the pessary be in such a case? If the pelvic floor has not been lacerated, and the adhesions are not too extensive, the womb may be gradually lifted to its normal place, and at the same time the size of the organ reduced by the judicious use of electricity, hot vaginal douches, the glycerine tampon and the pessary. This treatment supplemented by hygienic or medicinal means. I will only give a clinical history of one case, illustrating this form of retro-



version. Mrs. H., age 28, farmer's wife, consulted me May 12, 1887; presented all the subjective symptoms of uterine displacement; her illness dated back to her first and only confinement; three years previous vaginal examination revealed retroversion, "third degree;" womb enlarged, and partially bound down by adhesions, posterior vaginal wall shortened, patient very much emaciated, and so nervous that she was able to sleep but little; bowels of course were constipated. I put the patient on the following treatment: daily application of electricity, the current passing through the womb, this followed by hot vaginal douches. Then a glycerine tampon introduced well back under the womb; her bowels were regulated, and her health in general looked after. The treatment was kept up daily for six weeks. By the use of the above means the womb was gradually raised, lessened in size and adhesions broken up, so that I was enabled to adjust a Hodges pessary, which she wore with comfort and relief. She regained her usual good health, and for more than two years has been able to dispense with the pessary, the natural supports having regained their tenacity. What use can the pessary be in prolapsus. Dr. Paul Munel, in speaking of the use of the pessary for complete procidentia, says: "The ideal pessary is yet undiscovered."

If the organ can be readily replaced it may be kept in position by an intra-vaginal, or cup and stem pessary, according to the condition of the pelvic floor. If not readily reducible, support by medicated tampons, diminish in size by hot water injections, rest in bed. General hygienic and medical measures until it becomes so. Then if there is an impairment of the perineum from previous injury, it should be restored as soon as the tissues are in a condition for surgical treatment. If the prolapsus is incurable, due to a relaxed condition of the natural supports, you fail to do your duty if you do not restore the organ to its natural position and retain it there by a well-adjusted pessary. I will only give one clinical case illustrating this form of uterine displacement.

*Case 2.*—Mrs. L., aged 34, married, farmer's wife, former occupation a school teacher. Two years after her marriage consulted me in regard to her many ailments. All the symptoms indicated displacement of the uterus. Vaginal examination revealed prolapsus, second degree. Uterus was restored to its normal plane. As the displacement seemed to be due to a relaxed condition of the natural supports, I fitted a McIntosh supporter on her, directed her to remove it every night just before retiring, and take a vaginal injection of hot water and replace the supporter in the morning soon after getting up. By the use of this treatment, together with medicines that regulated her bowels and her system in general, in three months she became pregnant, but miscarried at sixth month. This was in 1887. Two months ago patient came to my office complaining of return of old trouble. Examination revealed retroversion, second degree, which was corrected by a well-adjusted Albert Smith's pessary.

Time won't permit me to speak of the use of the pessary in the treatment of retroflexion, ante-version and ante-flexion, but the same principles must be observed in their use as in the treatment of retroversion and prolapsus. Fortunately the stem pessary is rarely needed. In concluding my remarks on the use of the pessary, I want to emphasize these few leading points: (1) Where the patient is in a proper condition to wear a pessary and you fail to give relief by its use, the fault is with you and not with the pessary. (2) Each pessary must be fitted to the vagina, and not the vagina to the pessary. (3) Have clearly in mind the object you wish to accomplish before you attempt to use the pessary. (4) The pessary acts as both a palliative and curative agent.

The abuses of the pessary are many. The following are the chief ones: (1) Its indiscriminate use, regardless of the object to be accomplished. (2) The vagina is expected to fit the pessary, because it is made, or recommended, by some eminent gynecologist. (3) The uterus is lifted above the normal plane, thereby preventing natural circulation. (4) Introducing too large a pessary, over-distending the vagina, causing atrophy of the vaginal muscular tissues. (5) Neglecting to keep the patient under observation. (6) The idea that a pessary must be worn, regardless of consequences, because a physician introduced it and tells the patient she must wear it. The following case illustrates this last point so fully that I will give a clinical history of it. It was kindly furnished me by one of the most honored, as well as oldest members of this society, though at his request I omit his name:

February 24, 1891, I was consulted by a German woman, age 62, complaining of extreme nervousness to the extent of depriving her of sleep at night, or rest by day, with profuse leucorrhea that in warm weather made life a burden by the excoriation it produced. By a little questioning I found that eleven years ago she suffered from prolapsus, for which a physician procured for her a supporter with a cup on a wire, probably a Babcock or a Cutler, but it did no good. In June, 1882, she consulted a physician of this city who adjusted a closed Hodge, which relieved her. She says he said nothing to her of the necessity of removing it, except to tell her if she removed it, she could not replace it. As it relieved her, she said nothing about it. At the end of a year the discharge began, and soon after the nervous symptoms were manifested, but then there being no pain, or soreness about the womb, she did not refer them to it. She consulted two different practitioners, and procured medicines from both of them; of course without benefit. I removed the pessary without difficulty, and found deep ulcerations in the vaginal wall with adhesions, and partial "atresia" at the upper portion of the vagina. After a week's treatment she went home, 20 miles north, but has returned much benefited. Some nervous trouble left, which I think will disappear.

## EDITORIAL.

## FAIR PLAY FOR THE GERMS.

(CONCLUSION.)

IN presenting my third contention, that in inoculation experiments other products of the disease are inoculated along with the germs, I do not wish to be understood as advocating any "spontaneous generation" theory of the origin of my clients, *a la* Topsy, or "wrigglers" in a water-butt, but simply that their *pathogenic* powers, inherent or acquired, may, so far as the evidence goes, be regarded as a product of disease just as logically as a cause.

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IT is now universally conceded, even by the prosecution, that the actual mischief in any specific disease is wrought, not by my clients directly, in person, but by certain so-called "products of their activities," called ptomaines. As bacilli have neither teeth tentacles, nor even mouths, it is difficult to imagine how any more direct responsibility than this could ever have been attributed to them, and yet it was. Whether these ptomaines are actually a product *de novo* of their activities or not, is a question we will return to later. Suffice it at present to claim that in nearly all inoculation experiments, the ptomaines injected with the germs are the cause of the morbid symptoms and not the organisms themselves. In the earlier series of reports this was unquestionably the case, large doses of the diseased body-fluids or abscess-contents being the vehicle in which the germs were injected, containing enough of the ptomaines to kill a dozen such animals as the victim.

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IN the later this gross source of error has been guarded against to some extent by using what are known as "pure cultures," obtained by dropping a little of the suspected fluid with its contained bacilli upon gelatin or potato, selecting from the clusters or "colonies" which rapidly spring up, the guilty one, taking from its center a loop-ful and planting that on fresh ground until sure of the purity of its breeding, and then injecting it.

REGARDING this process, however, solely with reference to the original ptomaines, it is obvious that we have in it merely a method of successive dilutions, or as our homeopathic friends would call it, "raising of potency" of the existing poison, and when we consider the almost incredible virulence of these toxalbumoses and the infinitesimal doses which are capable of producing fatal results, it is not too much to claim that even in the third or fourth generation of a "pure culture" they may still be present in effective amounts.

This, I think, partly explains the significant fact that in nearly every case the virulence of any given germ diminishes in direct proportion to the age or remoteness of the culture used, it becomes "attenuated" in bacteriological phrase. Either these poisons are gradually got rid of, or the germ loses its power of producing them in the new environment.

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THIS brings us squarely face to face with the question: does the germ *alone* produce these poisons? and if so, does it manufacture them *de novo*, or only out of prepared pabulum, intermediate, excrementitious materials? To the first part of the question I answer emphatically, no; and cite you to the "animal alkaloids" of Brieger, the tyrotoxicon of Vaughan, and the interesting conditions of the system known as uraemia (so-called because it is *not* due to urea) diabetic coma, bile-poisoning, gout and asphyxia in proof of my assertion. Reverse the current of secretion or dam up that of excretion of any organ or tissue of the body, and you have serious disturbance at once. Every metabolic group of cells in the body is constantly producing physiologically that which is intensely pathological to the rest of the system, and will promptly "poison" it on the least disturbance of equilibrium, without assistance from any bacilli. Is there anything irrational in regarding even the so-called "specific" fevers and diseases as due to some derangement of or interference with our natural poison-breeding processes, and the great similarity of their course, as caused by their occurrence in identical tissue-groups of extremely similar individuals?

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BUT admitting the popular view, that the microbes do actually produce these toxalbumoses, and use them to attack living tis-

sues, much as the rattlesnake secretes and uses his poison, can they manufacture it out of, or even in the presence of, healthy living tissues or fluids? I defy even the prosecution to answer in the affirmative. The extremely elaborate and ingenious experiments of Hankin, Metschnikoff, Roux, Behring, Klemperer and others, upon the "immunity" problem, have practically demonstrated that infection in any given case is prevented in the healthy organism, not, as was at first supposed, by the leucocyte "policemen" attacking and devouring the germs, but by the serum of the blood neutralizing or destroying the toxalbumoses, and thus leaving the germs powerless for harm; much as a rattlesnake would be after the extraction of his fangs. Then, and then only—and here the "policeman" comparison is extremely apt—do the brave leucocytes fall upon and envelop him, and some observers go so far as to say that they wait until he starves to death before they even touch him.

Could, then, this toxin-forming power have been developed in healthy fluids or tissues? It seems scarcely possible, a precedent pathogenic condition of either pabulum or surroundings would appear to be necessary, and although my clients may aggravate the condition of affairs, as their excreta are even more intensely irritating to the body than its own, yet on the whole they would appear to be largely the victims of circumstances, and in the sentimental cant of the day, "more sinned against than sinning." Keep *filth*, both excrementitious and adventitious, out of their way and they are harmless, whether in a wound, an intestine, or a blood-vessel. Rescue them from their demoralizing (human) surroundings, place them in well-ventilated glass apartments, upon a chaste and abstemious diet of soothing gelatine and cooling raw potato, and they rapidly lose their vicious character and revert to the innocence of their childhood, become "attenuated," as the prosecution would say.

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"BUT," says some one, "supposing this to be true, what are they doing in our tissues, anyway? what do they mean by congregating upon our premises, unless they have some sinister ends in view?" There is no denying the fact of their presence, both "pathogenic" and "non-pathogenic" in countless numbers. I cannot prove "a halleybye" nor, unlike Mr. Weller, Sr.,

do I regret that I cannot. I am simply instructed by my clients to say that they are there as scavengers, that they are bred and educated in this profession, and have been for countless generations, and that the human frame is only one of a thousand fields in which they practice their honorable and useful vocation.

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AND to this assertion the whole scientific world rises up to bear witness. The soil, the water, the air, are fairly teeming with them, and everywhere are their activities recognized as not only harmless, but incalculably beneficent, except in our own ungrateful selves. They are the active reducing agents in the great crucible of Nature by which the dead forms of the old life are prepared for the use of the new. The decaying leaf the rotting fruit, the putrefying carcase melt into thin air and fertilizing moisture at their touch, and without them the inhabited globe would become a charnel-house inside of a single generation. Even more important than this, the intensely interesting researches of Frank and others (as given in another department of our journal) have made it almost certain that the power possessed by certain plants, especially the clovers and grasses, of taking up the nitrogen of the air, is dependent entirely upon their presence in the soil and upon their roots, so that the higher forms of plant life could not exist without microbes. Woodlands and meadows are their handiwork.

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THE latest reports of investigations into Nature's methods of water-purification reveal the unexpected fact that the principal and most essential factor in them is not percolation, aeration, filtration, or chemical oxidization, but the activities of the millions upon millions of bacteria with which the soil is fairly alive. Sterilized soil will yield neither springing grass nor sparkling water. Bacilli are literally "the salt of the earth."

The whole scope of investigation, although begun in a spirit of hostility and suspicion, has developed ten facts in their favor for every one against them, and has already gone far to prove that the lower life is the greatest friend and benefactor of the higher, instead of, as has been alleged, its bitterest enemy.

## DEPARTMENT OF DISEASES OF ANIMALS.

S. STEWART, M. D., D. V. M., EDITOR.  
(Secretary Iowa State Veterinary Society.)

SOME REMARKS ON THE TREATMENT OF WOUNDS IN THE  
DOMESTIC ANIMALS.

W. B. NILES, D. V. M.

Professor of Surgery, Veterinary Department, Iowa Agricultural College, Ames, Iowa.

Although wounds in man and the lower animals are similar, as far as causation and repair are concerned, there must of necessity be, in many cases, a difference in their practical treatment, on account of not being able to control our patient. The dressings used in human practice (antiseptic, gauze, bandages, etc.,) cannot always be kept in place, and consequently, the wound soon becomes infected with pus microbes or other pathogenic bacteria. Suppuration and slow healing follow, with septicaemia, pyaemia, erysipelas and tetanus, as possible sequelae. All veterinary practitioners know how utterly impossible it is to keep a majority of the wounds met with in every-day practice, and which must be treated under all kinds of adverse circumstances, aseptic. While it is easier to prevent suppuration than to arrest it, we are often unable, even when the wound has been seen soon after its infliction, to get healing by primary union. Being unable to maintain aseptic and thus prevent suppuration, a majority of wounds then must heal by the formation of visible granulations, and the question which presents itself to the practitioner is, how shall such wounds be treated? Disinfecting solutions should, of course, be included in the treatment of all wounds, but what should be done after disinfecting as thoroughly as possible? Should antiseptic ointments be applied without bandages, as is sometimes done? or should the wound be dressed with some antiseptic and then bandaged? or, again, should some powder be dusted on and no bandage applied?

It is not my purpose in this article to discuss the treatment best adapted to the different classes of wounds met with in veterinary practice, but to refer briefly to a line of treatment adapted to most granulating wounds, which has given good results in my hands; the theory of which has been demonstrated to be correct by some experiments made in our laboratory at the Iowa Agricultural College. These experiments I will describe further on. It is well known that where granulating wounds are exposed to the atmosphere they have a tendency to scab over if suppuration be not too profuse. Taking advantage of this fact, the treatment referred to consists of applying something to the surface of the wound which will prevent germ

growth, and at the same time assist nature in forming a protecting scab. (While I am aware that this line of treatment is not new with many, yet I know by my frequent contact with members of the profession that it is not generally practiced.) Of the many preparations used for this purpose I have found none as effective as iodoform and calomel combined. The iodoform acts as an antiseptic, and the calomel, being a desiccant, forms, in conjunction with the wound secretions, a firm scab.

Before applying the powder the wound should be irrigated for several minutes, ten, at least, with a disinfecting solution. I believe the mistake of not irrigating wounds long enough is often made. As experiments have shown that the *staphylococcus pyogenes aureus* is not always destroyed by being ten minutes in a 1.1000 solution of corrosive sublimate, how can we expect to destroy it in a less time in the recesses of the wound when it is protected by the secretions? After as thoroughly disinfecting the part as possible, the iodoform and calomel, mixed in equal parts, or one part of iodoform to two of calomel, should be dusted over the surface of the wound until no more will adhere. After about one half hour it should be dusted again and then left until the next day, when, if suppurating but little, all that is necessary is to apply again as the day before. If, however, there is much suppuration and no scab formed, the wound should be again irrigated and then treated as before. All that is generally necessary after the first or second application is to apply the powder once or twice daily until a hard scab forms over the entire surface of the wound. If this treatment is properly carried out the wound soon becomes covered with a hard, dry protecting covering, under which cicatrization goes on rapidly. Treated in this way it will do much better than if covered with oakum, jute, or absorbent cotton and then bandaged, because in the last instance suppuration will not be entirely arrested, and what pus forms will be kept more or less in contact with the wound, and this, with the rubbing of the bandage against the part, interferes with the granulation and prevents the formation of a normal scab. As a result the wound heals slowly, and in many cases fungus granulations appear.

If the wound be simply washed with an antiseptic solution, as is often done, and no powder applied, suppuration, although retarded for a little while, soon becomes profuse again, causing the natural scab to be imperfectly formed.

I do not wish to be understood as advocating this line of treatment for all wounds. I only recommend it for those which of necessity must heal by granulations, and which cannot be kept aseptic. Those which can be induced to heal by primary union, or can be dressed antiseptically and kept aseptic, should be treated the same as similar wounds in man. The following cases will serve to illustrate to what kind of wounds the iodoform and calomel can be successfully applied.



*Case 1.*—Sorrel filley, about 2 years old, received, among other injuries, by running into a barbed-wire fence, an oblique cut about three inches in length, across the anterior face of the large metacarpal bone, completely severing the tendon of the ant. extensor of the phalanges. As the case was not seen until several days after the accident, no sutures were inserted, but the wound was dressed antiseptically and a roller bandage applied. This treatment did not prove satisfactory. Pus accumulated under the dressing and the granulations becoming unhealthy, I decided to apply the iodoform-calomel powder. Daily applications of this soon caused the wound to become covered with a protecting scab, under which cicatrization progressed rapidly.

*Case 2.*—Gelding, with a large, lacerated wound just above the inner heel of the posterior limb, involving the coronary band, was brought to the college infirmary for treatment. Disinfection of the entire foot was attempted by placing it in a bucket of corrosive sublimate solution, after which the wound was dressed antiseptically and bandaged. On account of the location of the injury it could not be kept aseptic, although suppurating but little. It was constantly irritated by the bandages and made but little progress toward repair. For this reason all bandages were discontinued and the iodoform and calomel applied. The case began to improve at once (quite a change being noticed in twenty-four hours), and made a good recovery.

*Case 3.*—A bay mare, 3 years old, running in pasture, became frightened in the night and ran into a fence, inflicting a wound about six inches in length across the inner side of the fore arm, just above the lower termination of the superficial pectoral muscle. It was washed with a disinfecting solution, sutured and bandaged. Being in a difficult place to dress properly, suppuration occurred and only a small portion healed by primary union. After the sutures gave way bandages were discontinued and only the powder applied, as in the other cases. The wound healed fast.

A good way to apply the powder is by means of the small insect-powder blower, which can be obtained of any druggist. In the absence of this or any other powder-blower, I apply it with a spatula, or small wooden paddle. In some cases this is preferable to the blower as more can be made to adhere.

The experiments and results obtained therefrom, referred to in the beginning of this article, were as follows: Knowing that iodoform was extensively used as an application to wounds, but still claimed by some to be of little value, we determined to test its effects on the staphylococcus pyogenes aureus, one of the most common pus microbes. In order to have the circumstances as similar as possible to those in wounds treated with iodoform, surface inoculations were made on agar-agar and iodoform dusted over the surface. The cultures were then either left to develop in the tem-

perature of the room or placed in a thermostat at a temperature of about 37° Centigrade. No growth was perceptible in any tube treated in this way, even when left in the thermostat for several days, but in every instance the control tube (inoculated tube not dusted with iodoform) showed, after twenty-four hours, a vigorous growth of the aureus.

The same experiment was repeated, with the exception of using bituminized iodoform in place of the simple iodoform, with the same results. No growth whatever took place except in control tube, where it was vigorous.

The new preparation known as iodol, which is claimed to be equally as effective as iodoform, but minus the disagreeable odor, was also tried, but with very different results. In every instance there was a vigorous growth, apparently as vigorous as in the control tubes.

In order to determine whether or not calomel could be added to iodoform without destroying the antiseptic effects of the latter, experiments were made with a mixture of equal parts, and one part of iodoform to two of calomel. Both mixtures proved as effective as iodoform alone.

Similar experiments were also made with boracic and salicylic acid and pyoktanin (methyl violet). Each preparation was used alone, and in all cases there was no growth, except in control tubes.

From these experiments we conclude that all the preparations experimented with will prevent germ growth in a wound if kept in contact with all parts of its surface. Iodoform, bituminized iodoform and iodoform and calomel mixed, not being soluble in the wound secretions, will remain longer on the surface so as to form a protective covering, and are consequently better preparations to use than the others.

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### HOG CHOLERA AND SWINE PLAGUE.

W. B. NILES, D. V. M.

During the fall and winter an extensive epizootic disease of swine raged near the Agricultural College, and for the purpose of demonstrating the symptoms and lesions of the disease to the class in veterinary medicine, and also to determine if Salmon's "swine plague" organism could be found, the locality was visited by the writer.

On the farm visited, several head had died and several others were suffering with a sub-acute form of the disease. No acute case was available for examination. An examination of one recently dead showed extensive pneumonia, with pleurisy and pericarditis. False membranes were prominent, attaching the lungs to the chest-wall in many places.

The intestinal ulcers, usually found in hog cholera, were few and not well marked. Cultures in agar-agar from this case developed the hog-cholera bacillus of Salmon.

A few weeks later, hearing that hogs were dying in another locality, about two miles distant from the place first visited, I determined to obtain more cultures. The outbreak had about died out and only chronic cases were available. One of these was destroyed for examination, and cultures made in agar-agar, and nutrient gelatine. There was slight pneumonia of both lungs, but no pleurisy nor intestinal lesions. In the culture tubes the only pathogenic organism which developed was that of Salmon's swine plague.

From the symptoms or lesions shown in the first case examined, I am led to believe that the swine plague organism was present, although I could not detect it in the cultures. In the second case the absence of the intestinal lesions and the failure of the hog cholera bacillus to appear in the cultures would indicate its absence. Our finding the swine plague organism here, confirms what the Bureau of Animal Industry has said in regard to its being found in the west.

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NOTES.

BY PROF. M. STALKER, *Ames.*

"A BILL to Regulate the Title of Veterinary Surgeon in the State of Iowa," has been introduced in the senate. The bill emanates from the State Veterinary Medical Society, through a committee appointed at their last annual meeting. The bill provides for the creation of a "State Veterinary Board," who shall pass on all diplomas; both as to their genuineness and rightful ownership, for the issuing of certificates to the holders thereof, and who shall conduct examinations for the benefit of candidates wishing to secure certificates. The bill provides for the registration of certificates of both classes, in the office of the county recorder where the practitioner resides. The measure seems to meet the approval of senators and representatives generally, and will doubtless become a law. This is a move in the right direction and should receive the hearty support of all who are interested in the elevation of veterinary science in this state.

DR. M. J. REYNOLDS, a graduate of the Veterinary School at Ames, has just been elected to the professorship of veterinary science in the South Dakota Agriculture College, at Brookings. This election was a fortunate one for the institution. Dr. Reynolds is one of the most promising young men in his profession, this country has produced. At present the doctor is engaged to give a course of lectures before the Farmers Institutes of Minnesota, which are being held during the winter months.

DR. HATCHER, a veterinarian of Tipton, Iowa, recently met with a serious loss as well as personal injuries of a grave character, through the explosion of a lamp. His hospital with all his instruments and books, together with a number of horses was burned. One animal said to be worth

six or seven thousand dollars was burned with the barn. This latter was the property of another person. We are not advised as to the exact nature of the doctor's injuries, but are informed they are quite serious.

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DR. A. E. DERWENT, formerly of Waverly, Iowa, is now located at Council Bluffs.

DR. STEWART is temporarily located at Nebraska City, Nebraska, where he has been sent by the Bureau of Animal Industry to establish pork inspection.

IT is expected that every veterinary graduate in Iowa will aid in every legitimate way to secure the passage of a judicious veterinary law by the present legislature, and any assistance given by the M. D.s will be duly appreciated.

EACH reader of THE VIS MEDICATRIX should procure a copy of the Pure Food bill introduced into the United States senate by Senator A. S. Paddock, and carefully read its provisions. You will certainly consider it a move in the right direction. If it meets your approbation, a letter to that effect, sent to the congressman representing your district, might be helpful in securing its enactment. A copy of the bill can be obtained by addressing either Senator Wilson or Allison, Washington, D. C. If the bill becomes a law it will extend the sanitary field of labor.

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## DEPARTMENT OF PLANT DISEASES AND BACTERIOLOGY.

L. H. PAMMEL, B. AGR., EDITOR.  
(Professor of Botany, Iowa Agricultural College.)

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### NITRIFICATION.

In a former number of this journal I called attention to the manner in which leguminous plants like clover appropriate nitrogen by means of small organisms that have a symbiotic relation to the clover plant. Every living cell has an important constituent, nitrogen, which is one of the chemical elements used to build up protoplasm. This element occurs in the atmosphere in considerable quantity, and unlike oxygen, it enters with difficulty into a direct combination when in a free state, but when once associated with other elements, it readily passes into other combinations. Agricultural chemists and vegetable physiologists have shown that nitrogen of most plants is absorbed by the younger portions of the rootlets and root-hairs in the form of a nitrate. The question naturally arises, How are nitrates formed from the decomposition of organic matter in the soil? Agricultural chemists of twenty years ago looked upon the formation of nitrates in the soil as a purely chemical one. It appears that in 1873 a German chemist,

Mueller,(1) advanced the opinion that nitrification is due to the action of a ferment. It was not, however, until 1873 when Schloesing and Muntz(2) announced that the formation of nitrates in the soil was due to a micro-organism, that the subject received much consideration from scientific men. These investigators found that exposure for one hour to a temperature of 212° Fahr. is sufficient to destroy the power of nitrification. The addition of unsterilized humus to soil previously ignited caused nitrification. In a second series of experiments(3) they endeavored to produce nitrification by sowing sterilized soil with moulds like *Penicillium glaucum* (a very common mould on lemons and oranges) and acetic acid germs, etc. But in no case did nitrification occur. Storer(3a) repeated nitrification experiments and came to the same conclusion. In 1879 Warrington(4) published his results. The object of his experiments was to ascertain the influence of light and temperature and of variations in the composition and concentration of the solutions on the process of nitrification. From his investigation he concludes that ammonium chloride, fully supplied with plant food, will not nitrify if bacteria are excluded. A solution of ammonium chloride containing phosphate of calcium and sulphate of potassium, but no organic salt or carbonate of calcium, will not nitrify if bacteria are excluded. Nitrification takes place speedily only when an excess of a salifiable base, as a carbonate of calcium, is present. Nitrification may occur in solutions in which calcium salts are apparently absent. Light certainly hinders nitrification. In twelve experiments out of thirteen nitrification was prevented, or greatly delayed by exposure to light or rather to alternate light and darkness. Soyka(5) also called attention to the disturbing influence of light. In a subsequent contribution, Schloesing and Muntz show that nitrification can occur in a weak light as well as darkness, and that strong light retards this process. They also show that nitrates are not formed below 5°C. At 12°C it becomes more active, and at 37°C it reaches its maximum. It ceases entirely at 55°C. Warrington found that the product of nitrification is not uniform; both nitrous and nitric acid being formed. In cold dilute solutions, when nitrification occurred in the dark, nitric acid was chiefly formed, but when the solutions were kept at elevated temperatures, or in light, nitrous acid was produced. Notwithstanding some investigations carried on by Frank(6) and others, denying *in toto* the relation of nitrification and bacteria, it is quite generally accepted now that bacteria play an important role in this work. Plath(7) concludes that in the absence of organisms none of the separate particles, or the soil itself can cause the oxidation of ammonia into nitric acid. There can be no other conclusion but that nitrification is intimately connected with bacteria. From these and other experiments we are forced to the conclusion that the change of ammonia or of organic nitrogen compounds to nitrates in the earth, is not a process of chemical oxidation, pure and simple, such as might occur if the nitrogen compounds

were to be treated in the laboratory with powerful oxidizing agents. The biology of this process is somewhat interesting(8). The process can be started very easily in a suitable solution, if there is added to the liquid a small quantity of a solution lately nitrified. Warrington has also shown that when a solution which has nitrified and yielded nitrites is employed for seeding other solutions, the relative production of nitrous and nitric acid may vary according to the concentration, the depth and the temperature of the liquid. In successive series of cultures in ammoniacal solutions the property of forming nitrates apparently became weaker.

The first important step in studying the behavior of the germ is to get a pure culture of the nitrogen organism. Schloesing and Muntz isolated it by using successive cultures in sterilized liquids suitable for nitrification. These investigators only gave a description of the organism as it appeared under the microscope. They found in their final culture one organism. Every one familiar with a knowledge of bacteria knows that there is much difficulty in recognizing bacteria by their microscopic appearance. Their organism was a *Micrococcus*, sometimes slightly elongated. It was largest when grown in media rich in organic matter. Duclaux(9), who studied this germ, stated that it was not truly round or oval but a short *Bacillus* with rounded angles, and that it varied greatly in the medium in which it grew; that it also has a feeble refractive power. He also suggested that more than one species may be present. In 1884, Warrington observed gelatinous flecks in solutions which had undergone nitrification. From this he isolated on gelatin an organism which he called *Bacillus tardescens*, but this germ did not nitrify ammoniacal solutions. Winogradsky(10) has obtained in gelatinous clots the nitrifying organism in a pure state. It is now well known that the nitrifying germ will not grow in gelatin. Further experiments with gelatinous media made by the Franklands and Warrington gave entirely negative results at first. A second experiment by the dilution method, separating by the capillary method (1.1000, 1.10000, 1.100000, 1.1000000,) three cultures were obtained in a pure state. Winogradsky has recently published a paper in which the germ was made to grow on gelatinous silica. The germs are said in this medium to give a very characteristic growth. The organism consists of spherical or ellipsoidal bodies. The longer forms are about to divide and are of the dumb-bell form. It stains readily, except in the irregular forms.

The nitrifying organism can dispense entirely with organic matter. During energetic nitrification a considerable quantity of carbon is assimilated. For 1 of carbon assimilated, 35.4 of nitrogen of the ammonia were on an average oxidized to nitrous acid.

One of the interesting points in connection with the growth of the nitrifying germ is that it can decompose carbon dioxide. Warrington remarks: "The doctrine that a vegetable cell, destitute of chlorophyll and growing

in the dark, should be capable of constructing organic matter from an inorganic carbonate, presents quite as many difficulties to the chemist as to the physiologist, as the action in question is one requiring a considerable absorption of energy." But this action is possible if account is taken of the

FIG. 1.



FIG. 2.



## EXPLANATION OF CUT.

Fig. 1, nitrous organisms; *a* and *b*, in ammonium carbonate solutions; *c*, in beef broth at 22° C; *d*, in half per cent milk at 22° C. After Warrington. Fig. 2, nitric organism in potassium nitrite solution. After Warrington.

energy liberated by the oxidation of ammonia. The organism isolated by the dilution method converts ammonia into nitrous acid. The English experimenter has also shown that the pure organism added to solutions of potassium nitrite containing phosphates, etc., causes no loss of the nitrite, nor has a pure culture of the germ the power of reducing calcium nitrate. It can produce nitrous acid in solutions of asparagine, urine, and urea, the latter being the most difficult to attack. It is possible, however,

that other organisms may hasten the process of nitrification by making a preliminary attack upon organic matter. The process is greatly facilitated by the addition of carbonic acid, mono-sodium, carbonate, or calcium acetate.

The nitrifying germ apparently does not produce nitrates in the presence of ammonia. In strong solutions of ammonia seeded with soil, a considerable quantity of nitrous acid is produced, but the formation of nitric acid only sets in when the ammonia has greatly diminished in quantity. The organism isolated by Warrington from ammoniacal solutions is only capable of oxidizing ammonia to nitrite, and quite incapable of converting nitrites into nitrates; but nitrification, which normally occurs in aerated soil, results in the production of nitrates. The author has well said, "It is clear from what has just been stated that the isolation of the nitrifying organism, as at present accomplished, does not solve the problem of nitrification." Munro thought that two organisms existed in the soil; one causing the formation of nitrites, and the other nitrates. The matter in regard to nitrates has not been entirely cleared up. The germ is one which will probably not grow on gelatine. In soil, it must be equally active with the nitrous germ, soil only containing weak solutions of ammonia and supercarbonates, the latter being very essential. We must therefore conclude that nitrification in the soil is probably caused by two distinct organisms; the nitrous organism growing readily in ammonium carbonate solutions, the second in potassium nitrite containing monosodium carbonate.

[1] Landw. Versuchs. Stat. Vol. XVI, p. 233.

[2] Compt. Rend. Vol. 85, p. 1018.

[3] Compt. Rend. Vol. 86, p. 892.

[3a] Ann. Jour. of Sci., Series III, Vol. XV, p. 144.

[4] Journal of the Chemical Society, July, 1879.

[5] Zeitschrift für Biologie, 1878, pp. 440-482.

[6] Berichte d. deutsch. bot. Gesellsch., Berlin, 1886, Vol. IV, p. 108.

[7] Landw. Jahrbuch., Vol. XVI, p. 891.

[8] The reader who is interested, for the details of some of the experimental work should consult two excellent papers by Warrington, Journal of the Chemical Society, 1878, p. 447; July, 1879; December, 1884. See, also, his paper on Nitrification, pt. IV.

[9] Chim. Biologie, 1883, p. 703.

[10] Ann. d. l'Institut Pasteur, 1890, p. 213.

Mrs. and Prof. F. F. Frankland, Philosophical Trans. B., 1890, p. 107.

### SANITARY QUESTIONS.

One of the important points discussed at the seventh International Congress on Hygiene and Demography was that of diseases transmissible by milk. Dr. Klein, in a paper on "Infectious Udder Diseases of the Cow in Relation to Epidemic Diseases in the Human Subject," contended, that in several cases, epidemics of scarlet fever and diphtheria were caused by the drinking of milk in which the contagion came from the milch cows. Dr. Bostock Hill concurred with Dr. Klein on the transmissibility of these diseases from milch cows to man. Professor Crookshank, however, holds that there is not the least evidence to support the views of Klein. Dr. Ostertag



said that most countries have not given the subject of sanitary milk supply the attention it deserves. While the sale of adulterated milk or that of diseased animals is forbidden, no steps are taken to enforce the law. The Italian law of provisions of Aug. 3, 1890, is an exception. Only pure milk, obtained with the greatest cleanliness from healthy cows, should be tolerated. The following kinds of milk must be excluded: (1) Milk of peculiar color, taste or consistence (nauseous milk); (2) all milk that is prejudicial to health, or which is suspected on good grounds of being so,—milk of animals fed on poisonous fodders, or those suffering from tuberculosis, malignant pustule, apthæ, etc. He suggested that all dairies should be licensed, that all animals kept for milking be examined by a veterinary surgeon from time to time, and they should give notice of any illness. Milking should be performed with the greatest cleanliness. In case of an outbreak on any dairy-farm of a contagious disease, the sale of milk should be forbidden. Milk should never be stored in sleeping rooms, and during the prevalence of apthæ, only boiled milk should be brought into the market. Prof. Bang, on "Alleged Danger of Consuming the Apparently Healthy Meat and Milk of Tuberculous Animals," thought the milk of a tuberculous cow, with udder apparently healthy, was not, in the great majority of cases, dangerous; though it was so in some cases. Muscular tissue is an unfavorable nidus for the tubercle bacilli. (Mark Lane Express, Vol. LXV, p. 244.)

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At an association of chemists, microscopists and food products held in Vienna, October, 1891, the following interesting subjects were discussed: Dr. Czokor urged the great importance of microscopical examination of foods. Dr. Vogel called attention to the frequent impurities in flour and breadstuffs; leaves, flowers, etc., can be detected by their external characters. It is much more difficult to recognize impurities in the form of powder. Dr. Löbisch stated that among some of the impurities in flour and breadstuffs, copper and iron sulphate should be mentioned. Dr. Hanausek called attention to the appearance of *solanin* in unripe potatoes, as well as such as have started to shoot or were affected by fungi. (Zeitschrift für Nahrungs mittel Untersuchung und Hygiene, Vol. V, November, 1891.)

The matter of making an examination of drugs and medicines for their adulterations has not received the attention it deserves in this country. It is true the Department of Agriculture has done some excellent work, and the Secretary of Agriculture has promised an investigation of "bogus coffee," which is being sold in large quantities in this country, yet we believe more work of this kind should be done. Many articles of food sold as pure are often contaminated with unwholesome substances.

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#### THE ABORIGINAL NORTH AMERICAN TEA.

In Bulletin No. 14, U. S. Department of Agriculture, Dr. E. M. Hale

discusses the aboriginal tea of North America, "Yopon" (*Ilex cassine*), a species of holly, growing in the southern states along the sea coast from Virginia to the Rio Grande. The author states 20 or 30 miles from the coast, which is an error. Sargent reports it in Arkansas, and we have seen it at least 100 miles from the coast in Washington county, Texas. The leaves were used by the aborigines as the Chinese use tea and the Paraguayans maté (*Ilex paraguayensis*). Prof. Venable, who has made a chemical examination of five species of *Ilex* found in North Carolina, finds the alkaloid, *caffeine*, only in the leaves of Yopon. Of the five species belonging to the genus *Thea*, to which tea belongs, only one contains *theine*. Of the order *Cinchonaceae*, to which cinchona and coffee belong, only one contains *caffeine*, and that is coffee. Three other South American species of the genus *Ilex* contain *caffeine*. Yopon tea is not as pleasant in odor and taste as Chinese tea, but it seems to have some salutary properties not possessed by the latter.

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## ORIGINAL CONTRIBUTIONS AND CASE REPORTS.

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### CLIMATE IN THE CURE OF CONSUMPTION.\*

L. FRENCH, M. D., *Davenport.*

The period for the society's retiring president to address you has now arrived; the address, whether useful, amusing, or a bore, must be forthcoming, so long as the time-honored custom is complied with. I have selected for your consideration some of the objects and work of the American Climatological Association. The seventh session of this comparatively new organization was held last September in Denver, on which occasion I was present, and at once became interested in its work. Almost all the members of the association are representative men of the medical profession, from different parts of the union. Many of them are noted specialists in lung and throat diseases. There are also among its members, scientists, interested in sanitary reform, and the general effect of climate upon health from their standpoint. Among the medical men present were, Dr. Fredrick Knight, Dr. Vincent Bowditch, Drs. Monroe and Wadsworth, of Boston; Dr. Wainwright, of Hartford, Dr. Ingalls, of Chicago, Dr. Baker, of Michigan, Dr. Dennison, the retiring president of the association, Dr. Fisk and other physicians of Denver; Drs. Solly and Pennington, of Colorado Springs, Dr. Walker, secretary of the society and Dr. Curtin, of Philadelphia, besides many other physicians from different parts of the country. Some of the papers read, and discussions were, "Climate and Regions Suitable for Phthisical Invalids." "Effects of High and Low

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\*Read before the Iowa and Illinois Central District Medical Association.

Altitude in Tuberculosis." "Effects of Moist and Dry Air in Phthisis."  
"Effects of Rapid Change from Low to High Altitude in Tuberculosis."

The discussions on climate, and regions beneficial to phthisical persons, brought out much useful information from the local physicians, upon their experience in that region with pulmonary diseases. All seemed to agree that persons going there suffering from phthisis in the first and second stages, usually recover. The influence of the air, altitude and bright sunshine arouses a tonic action in their weak and wasted constitutions that finally restores them to apparent health as long as they remain in that locality; but it was also their experience that such patients going back to their former homes generally had a return of the disease in a short time. The same place and conditions that restored them in the first instance, seldom had any mitigating influence a second time. Another important point that all seemed to agree upon, was the immunity from tuberculosis among the residents in the second generation, in whom hereditary tendencies were known to exist, and they claimed this immunity as an argument of great value in favor of climatic influence, and proved the existence of elements in the air of that region antagonistic to tuberculosis affections.

The effects of high and low altitude, and of dry and moist air, created quite a discussion, in which there was some difference of opinion as to which was the most beneficial: high altitude or dry air; but it was finally conceded that a high altitude is necessarily dry, and that both of these conditions are equally curative. These subjects were ably handled, and elicited a vast amount of practical knowledge, gained by long experience in the arid regions, and of value to every medical man in the country. I cannot at this time go into the details of theories advanced in relation to the *modus operandi* of the climatic action of high altitude, in all stages of tuberculosis, its influence in hemorrhagic cases, or on the circulation, or what it has to do with the restorative process. Yet, the curative properties of dry mountain air were demonstrated on every hand. Some physicians thought the recuperative influence might be due to the constant presence of ozone in the air, sufficient in quantity to weaken and finally destroy the tubercle bacillus, and to disinfect and stimulate ulcerated surfaces in the lungs to a healthy and healing action. Others went further and claimed that high altitude relieves the body of the sea level atmospheric pressure to such an extent that the lungs are forced to expand more freely, thereby opening the long-closed air cells and admitting the pure ozonized air into the cells about the affected parts, and that the ozonized air disinfects the cells and renders the more healthy portions obnoxious to the bacilli; this they claim is the commencement of the curative process. Physicians not acquainted with the effect or influence of altitude, from four to six thousand feet above the sea, in tuberculosis, seemed to think that all the above conditions would be favorable in inducing hemorrhages and would really

prove to be a dangerous environment for consumptives seeking health from lower altitudes, on account of the diminished atmospheric pressure and the corresponding increased lung action, but it was fully demonstrated by the physicians of Denver, Colorado Springs and Salt Lake that hemorrhages were no more frequent in high altitudes than at the sea level.

Another very important point for discussion, and the outcome of the above query, was the change from low to high altitude. The resident physicians, who have lived there ever since the early settlement of the country, spoke from actual experience, and not from theory. They claimed that many more recoveries followed the slow stage-coach transportation of former days; that the change to higher altitude by rail is too rapid for some of those who have suffered great loss of lung tissue, and that severe prostration follows even to a dangerous degree, compelling the patient's return to a lower altitude, and that after remaining there for a time, to recuperate, he may then move up by degrees, to the point first aimed at, thereby avoiding a depressing influence or shock. However, it was further proven that but a small percentage were thus affected, and that while many were apparently equal sufferers in the loss of lung tissue, they obtained great relief on reaching the high arid region, contrary to the experience of others of their class. No very satisfactory explanation could be given for the different effects in seemingly parallel cases, unless, that in the former instance, the depression could be accounted for through heart insufficiency; but that theory was not fully substantiated.

Another point of interest, well worth remembering by physicians when advising a change of climate for consumptives, is, that the large cities are weakening in climatic influence, but that the barren plains, lonely ranches, and small towns, retain their reputation for climatic vigor, that has always, from an early day been given to that region. This lack of climatic vigor in the large towns may be accounted for by a vitiated condition of the atmosphere arising from irrigation, and pollution of the land in their immediate vicinity; consequently a comparatively smaller per cent of recoveries from tuberculosis is reported at the present day, than in the earlier history of the same places.

It cannot be too strongly impressed upon all phthisical patients, who go there and are benefited, or cured, that they must remain in that region, and not run the risk of returning to their old homes. Recovery from bronchitis and catarrhal affections is more permanent, after any change of altitude or climate. Colorado is not by any means the only region beneficial in lung affections, nor is it superior to any other state or territory within the arid region. Utah, Montana, Idaho, and portions of New Mexico, are equal rivals; as nature has endowed them all with dry air, almost perpetual sun-

shine, large areas of the same altitude, thermal waters, and mineral springs of nearly the same constituents.

An impression prevails among people to some extent, which, probably had its origin in the medical profession, that consumptives should avoid the rigorous winters of temperate climates. This idea is but a theoretical delusion without any justification or evidence of practical truth; nevertheless, it has increased the mortality, and will continue, for an indefinite time, among that unfortunate class of invalids. The fact is, that cold frosty air, is a bracing stimulant and yields a life-giving force that sends energy and strength to every nerve and muscle; and is also a powerful, nay, indispensable tonic to the depraved and weakened system. An equable climate, possessing hygienic elements, and a life-giving force for consumptives, is purely ideal. Only a thought, or a moment's reflection should be required, to convince any one, that if a warm, even climate, has a tendency, more or less, to enervate the strong and healthy, it must weaken, in a much greater degree, the feeble and depressed. Therefore a medium temperature, in a high and dry atmosphere, such as the arid regions afford, together with its inclement seasons of climatic changes, its frosts, snows and winds, is far preferable and will return the best results in the cure of tuberculosis. Such weather changes give physical rest to the body, and though disagreeable in many ways, are like counter-irritants, or changes of diet; they strengthen assimilation, and in tendency have an enlivening and cheerful influence. In summing up the conclusions arrived at from the various discussions, it is clear to my mind that the region possessing the greatest natural advantages, as a health resort for consumptives and other classes of chronic invalids, is that of Salt Lake. If asked by any one suffering from phthisis for advice as to climatic change, I should without hesitation recommend that locality as the best. There the average number of cloudy days during the year is but fifty, the water is pure, the mineral springs of great medicinal value. The atmosphere is as pure and dry as that of Colorado, but the climate is less rigorous and windy. To these valuable and healthful conditions may be added another important factor, that of Great Salt Lake, 4,000 feet above sea level, where sea air, and sea bathing, in a dry atmosphere, and all the pleasures of an ocean beach, can be enjoyed.

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#### REMARKABLE CASE OF BULLET IN BRAIN-SUBSTANCE.

R. E. CONNIFF, M. D., *Sioux City.*

September 16, 1891, I was called to see Mr. C. B., a resident of this city, aged 63. The patient had been sick eight days, and under the care of another physician. At the time of my visit I found a well-defined case of enteritis, the patient suffering intense pain in the bowels, with a very much

distended abdomen ; in short he presented all the symptom of an enteric inflammation in the last stage. In addition to the inflammatory trouble he gave a history of pain in the head and inability to lie on the right side. On closer questioning the wife, I found that in May, 1862, he received a gunshot wound in the head, the ball entering near the left angle of the mouth and passing upward into the brain, so they supposed. The patient claimed that he could feel the missile in the head just back of the left ear, when he would turn his head from side to side. He had suffered almost constantly with pain in the head, which at times was almost unbearable. With the severe pain he would suffer from vertigo to such an extent that he would be compelled to lie down. The hearing of the right ear had been destroyed and the vision in left eye impaired to a considerable extent. There had been inability to concentrate thought for any considerable time without producing the most violent headache and vertigo. His mind was filled with forebodings and imaginary dangers, and in the times of most intense suffering would cry out, that "the bullet was moving in the brain."

A hypodermic injection of morphine quieted his pain, but did not produce sleep. He died on the following day from inflammation of the bowels, and an autopsy was had. The *post mortem* examination showed an extensive plastic inflammation of the bowels, with numerous adhesions of the small intestines which were very much congested and softened. The peritoneum was not involved, but the cavity contained considerable pus from the sloughing of the bowels. The other abdominal viscera were found to be in a normal condition. The brain was removed and a careful search made for the ball supposed to be imbedded in the cranial wall. The course of the missile was traced without difficulty; it had entered near the left angle of the mouth, passed beneath the malar bone, entering the brain through the left orbital cavity near the optic nerve; from here it passed through the brain into the left lateral sinus, and was imbedded in the brain-substance just back of the posterior cornu of the left lateral ventricle, buried in the substance of the occipital lobe, and surrounded by brain matter on all sides, where it had been for more than *twenty-nine years*.

This case seems of unusual interest when we consider the location of the wound, the extent of brain injury, and the number of years the bullet was carried in the brain without materially impairing health or producing death.

### FRACTURE OF THE THIRD AND FOURTH CERVICAL VERTEBRÆ.

S. W. CLARK, A. M., M. D., *Oskaloosa*.

On the evening of September 16, 1891, John J. Drury was thrown from his buggy down an embankment, alighting on his head, the buggy striking him on the chest and holding him head downward against the bank. He

was carried to the nearest house and a messenger sent to Oskaloosa, the nearest town, after a physician. He lay unconscious for over half an hour, when he aroused and in a short time insisted on going to a friend's house about twenty rods away. Soon after this the physician arrived, and after examining the patient, said he would be all right in a short time, as he was only bruised and shaken up. The patient has no recollection of what occurred up to that time. The first thing he recollects is that about one and-a-half hours after the accident he experienced difficulty in swallowing and could not straighten his head. He called the doctor's attention to this fact, but was again assured that everything was all right. He soon found that he had difficulty in articulating certain words, and did not have as good use of his right hand as he had before he was injured.

On October 2d, fifteen days after the accident, he was examined by Dr. W. R. Nugent, of Oskaloosa, who at once pronounced the trouble a fracture of the third and fourth cervical vertebræ, with displacement downward, forward and to the left. The trouble was explained to him, and he was advised to have the fracture reduced. At the same time the danger incurred in the operation was fully stated, and to set or not to set the fracture was left to his own volition. He determined to accept the risk of the operation, influenced, no doubt, by the increasing difficulty in deglutition and paralysis of right arm. On the same day, October 2d, Dr. Nugent, assisted by Drs. Barringer, Henderson, Lukens and Clark, etherized the patient and reduced the fragments of the broken vertebræ. Steady, gentle traction was made from the chin and occiput, while counter extension was made by strips of muslin over the shoulders and down opposite sides of the body. It was several minutes before the fragments gave in the least. Soon, however, by steady traction and pressure on the parts through the mouth, on the projection in the pharynx and on the sides of the neck, the parts were felt to give and were moulded into place. He was now allowed to recover from the anaesthetic, and traction still being kept up, was placed in a chair. A well-padded band was fastened around his head and made fast to a double block and rope hooked to the ceiling directly over his chair. Extension now being kept up by means of the rope and pulleys, cotton wool was placed over his neck and shoulders and plaster of paris bandages applied, which extended well over the shoulders and up to the chin, ears and occiput. He was now given a glass of water, which he drank without difficulty.

That evening he went home, and the next day went to Chicago to be treated at St. Luke's Hospital, which institution he entered on the 6th of October. According to his statement he was examined on the 8th. The following day the cast was removed and a new one applied. This cast was allowed to remain for nine days, when it was removed and another one applied, which extended over the head and under each arm. On the last

day of the month he returned home. When he returned home he was troubled with vomiting and increasing paralysis of arm, which persisted in spite of medication until that portion of the cast extending over the head and under the arms was removed, when the vomiting ceased and the paralysis improved. At this time there is no union of the vertebræ, as at times, when riding over rough roads, he feels crepitation at the points of fracture. He is able to go about his business, eats well, sleeps well, drinks well, and has no trouble with his neck except that occasioned by the cast.

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### RECORD OF BIRTH OF ANENCEPHALOUS MONSTER.

C. H. MYERS, M. D., *Eagle Grove.*

Was hastily called on evening of October 2d by Mr. A., who, much alarmed, stated that "there was something wrong up to his house." On arriving found his wife had given birth to a monster, which had no part of the head developed from below the eye-brows, running down a median line, terminating at the nape of the neck. The body had the ordinary proportions of what is known as "a seven months child." The ears, which projected upwards above the cranial portion, combined with the wide-open, staring, black eyes, which "winked and blinked" ominously was a sight calculated to stir up even thick-skinned M. Ds. I instinctively looked for a forked tail, there was none; it was "split," (*spina bifida*). It lived perhaps ten minutes. Weighed six pounds. Arms and legs perfectly formed. The eyes were set at an angle of 72°. The place where the "head ought to be" was covered with a thin membrane. The bony floor of the skull perfectly smooth, no brain matter, or appearance of termination of spinal cord. The mother, a healthy looking Swede woman, gives history of repeated abortions. On questioning states she went full term, which was confirmed by appearance of placenta.

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### THE MUSEUM.

#### PATHOGENY SIMPLIFIED.

"It is a known fact that man can inhale through his nose, for a certain time, *mephitic air*, in the bottom of a well, without harm; but if he opens his mouth to answer a question, or calls for help, in that position, his lungs are closed and he expires. Most animals are able to inhale the same for a considerable time without destruction of life, and, no doubt, solely from the fact that their respiration is through the nostrils, in which the poisonous effluvia are arrested.

There are many mineral and vegetable poisons also, which can be in-



haled by the nose without harm, but if taken through the mouth destroy life. And so with poisonous reptiles, and poisonous animals. The man who kills the rattlesnake, or the copperhead, and stands alone over it, keeps his mouth shut, and receives no harm; but if he has companions with him, with whom he is conversing over the carcasses of these reptiles, he inhales the poisonous effluvia through the mouth, and becomes deadly sick, and in some instances death ensues (!!)

The lungs and the stomach are too near neighbors not to be mutually affected by abuses offered to the one or the other; they both have their natural food, and the natural and appropriate means prepared by which it is to be received. Air is the especial food of the lungs, and not of the stomach. He who sleeps with his mouth open draws cold air and its impurities into the stomach as well as into the lungs; and various diseases of the stomach, with indigestion and dyspepsia, are the consequences. Bread may almost as well be taken into the lungs, as cold air and wind into the stomach. Every physician should advise his patients, and every boarding school in existence, and every hospital, should have its surgeon or matron, and every regiment its officers, to make their nightly, and *hourly*, "rounds," to force a stop to so unnatural, disgusting, and dangerous a habit.

Under the working of such a system, mothers guarding and helping the helpless, schoolmasters their scholars, hospital surgeons their patients, generals their soldiers, and the rest of the world protecting themselves, a few years would show the glorious results in the bills of mortality, and the next generation would be a *re-generation* of the human race (!!) \* \* \*

And if I were to endeavor to bequeath to posterity the most important motto which human language can convey, it should be in *three words*—

"SHUT—YOUR—MOUTH!!"

—*Callin's "Breath of Life."*

#### SOME OLD-TIME HEALTH RULES.

Spring, autumn, winter and summer reign in the year;  
 In spring the air may be warm and moist,  
 No time is better adapted than that for blood-letting;  
 Bodily exercise and the loosening of the belly, and sweat;  
 Then let baths purge the body, with medicine.  
 Summer afterwards dries such. Let it be known that in that  
 Time red cholera especially prevails.  
 Let damp, cold, dishes be given; let copulation be avoided.  
 Baths do no good; let blood-lettings be rare:  
 And let useful rest be practiced, with moderation of drinking,  
 In harvest time let cold things be joined with the dry;  
 Let that which nourishes black cholera be avoided by every one,  
 And let the bodily motion and use of Venus be greater.

When winter grows moist, grows cold, let us be strict in our food.  
 Let there be no purging of the belly in it, nor blood-letting.  
 Copulation is advantageous, let Venus be friendly to the couch.  
 The change of season renders not a few sick.  
 It is beneficial to preserve the proper heat of nature ;  
 Damp things cannot hurt men's strength  
 While nature is able to enjoy its own heat.  
 Let joyous songs very often gladden your spirit,  
 Cultivate pleasant words, abandon litigious ones.  
 Let showy newness of garment be to thee often ;  
 Take dishes which have a flavor, and cups unadulterated.  
 Beware of indulging thy throat ; despise luxurious things ;  
 Prudently avoid things which are hurtful to thee.  
 Seek doctors for thyself if thy flesh be scabby.\*  
 To your ears now and then let delicious music be given ;  
 Flee from envy ; let morose anger not know thee,  
 When holy places contain thee, cultivate religious thoughts.  
 Let not thy words be loose, nor thy deed shameful and detested ;  
 Let thy acts be shining through all things, not dark ;  
 Thus, thou shalt purchase long and joyful years.

[Englished literally from the *Modus Cœnandi*, "The Way of Dining"—an old Latin MS. of uncertain age and authorship.. see *Early English Text Society*, Vol. 32.]

\*In another place the same sensible old authority thus advises .

*Si desint medici tibi, sic medici tibi fiant :  
 Sit tibi mens læta, labor moderata, diæta.*

"If doctors fail thee, thus let doctors be made for thee :

"Let there be to thee a cheerful mind, exercise, and moderate diet."

## STATE ITEMS.

THE coming annual meeting of the State Medical Society will be held at Des Moines, Wednesday, Thursday and Friday, May 18th, 19th and 20th. The following is a list of chairmen of the different Sections:

Medicine—Dr. E. Hornibrook, Cherokee.

Surgery—Dr. O. J. Fullerton, Waterloo.

Obstetrics and Gynecology—Dr. E. H. King, Muscatine.

Ophthalmology and Otology—Dr. J. W. Dalbey, Cedar Rapids.

Materia Medica—Dr. J. M. Barstow, Council Bluffs.

Hygiene and State Medicine—Dr. C. S. Snook, Fairfield.

Mental and Nervous Diseases—Dr. P. W. Lewellen, Clarinda.

All who contemplate reading papers will please communicate with their respective chairmen at the earliest possible date, as it is desired to make up the announcement some time in advance.

We regret to chronicle the departure from the state of our valued Secretary, Dr. C. F. Darnall, of West Union. He goes to locate in the south on account of the condition of his wife's health. He will be greatly missed at our coming meeting, but his mantle has fallen upon capable shoulders, and we may rest assured that its program and arrangements will be well taken care of by the Assistant Secretary, Dr. J. W. Cokenower, of Des Moines. All communications for the secretary will in future be directed to him at No. 523 Walnut street, and it is especially requested that the chairmen will forward their lists of papers as early as possible, so that the announcement may be got out in good time, and everything possible done to render the next meeting the best in our history.

THERE is great satisfaction felt throughout the profession of the state at the appointment of Dr. W. D. Middleton, of Davenport, to succeed Dr. Peck as surgeon-in-chief of the Rock Island.

THE Central District Medical Association held a successful meeting at Boone, December 15, under the presidency of Dr. F. S. Smith, of Nevada, Dr. A. A. Deering being secretary. Interesting papers were read by Drs. Enfield, Ensign and Chamberlain. The following resolutions upon the death of Dr. W. J. Saunders, of Scranton, were adopted :

*Resolved*, That in the death of Dr. Saunders the profession has lost one of its promising members ; one who possessed enterprise and enthusiasm for his work, and who most acceptably filled the position of medical practitioner in an exacting and laborious field of work.

*Resolved*, That this community has been deprived of a public spirited citizen, as shown by the public exhibition of regret at his untimely death, and their very general expressions of affection for his work as a physician.

*Resolved*, That the Central District Medical Society, of which deceased was an honored member, extends its profound sympathy to his family, and that a copy of these resolutions be sent to them, and also to the Journal of the State Medical Society, published at Des Moines.

The next meeting will be held at Jefferson.

A MEETING of the Medical Society of the Missouri Valley will be held at Leavenworth, Kas., March 17th and 18th. All members of the profession cordially invited to attend.

THE first meeting of the Iowa Public Health Association, held at Des Moines, January 28th and 29th, was a most gratifying success, and gave every sign of viability. An extra session had to be held to accommodate the papers presented, and the evening public meeting was well attended. The following papers were read :

President's Address—A. W. Cantwell, M. D., Davenport.

Water Purification—Prof. Floyd Davis, Des Moines.

Water Supply of Davenport—J. P. Donahue, Secretary of Waterworks.

Sanitary Regulations in Cities of First Class—Lewis Schooler, M. D., Des Moines.

Should Iowa have a Legal Milk Standard?—Prof. S. E. Patrick, Ames.

The Effects of our Public School System on the Rising Generation—Woods Hutchinson, M. D., Des Moines.

The Prevention of Insanity—G. H. Hill, M. D., Independence.

The success of the meeting was largely due to the untiring efforts of the Secretary, Dr. I. S. Bigelow, of Dubuque, and the Vice-President, Dr. P. J. Fullerton, of Raymond. Several of the papers will appear later in THE VIS MEDICATRIX.

DR. I. P. BRUBAKER, of Des Moines, has been laid up with an unusually severe attack of la grippe, but we are glad to report has almost completely recovered.

THE western part of the state had a very narrow escape of losing one of its most prominent and widely-known physicians in the person of Dr. J. M. Emmert, of Atlantic, about a month ago. The doctor was suffering from a slight coryza, and on coming into his office at noon, poured into the palm of his hand, and snuffed up into his nostrils, about half a drachm of what he supposed to be a 2 per cent solution of cocaine. He drew the vial containing the solution out of a case of collyria for use in the eye, and by an unfortunate mistake got hold of a solution of atropia in place of the cocaine, and never discovered his error until the effects of the poison upon his eyes and throat began to develop. Drs. Porterfield and Graham were instantly summoned, a three-fourths grain injection of morphine given, and aid telegraphed for to Des Moines. Drs. Priestley, Hanawalt and Brubaker went up at once upon a special train placed at their disposal by the Rock Island road, and arrived there early in the evening. The doctor was unconscious and delirious all the afternoon and evening, but by midnight was considered out of danger, and in twenty-four hours more was completely recovered. The only wonder is that such accidents do not oftener occur in our ranks, especially since the introduction of the alkaloids, with their colorless and almost tasteless powders and solutions, most of them absolutely indistinguishable except by the label.

THE sixth annual session of the Iowa Academy of Sciences was held at Des Moines, December 29 and 30, 1891. The co-operation of physicians and veterinarians in the valuable and interesting work of the organization is cordially solicited. Prof. Herbert Osborne, of Ames, is the secretary.

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### OBITUARY.

DIED, at his home in Davenport, Iowa, Dec. 12, 1891, DR. WASHINGTON F. PECK, in the 51st year of his age.

WASHINGTON FREEMAN PECK was born in the town of Galen, Wayne county, New York, Jan. 22, 1841. He was the son of William H. and Alida

(Hawes) Peck, natives of the same place, the former of Scotch descent and the latter of Dutch lineage. His mother still lives, but his father preceded him to the great bourne a few years ago. The son received a good common school education, but his whole life was one of study and observation. Almost in boyhood he manifested a decided taste and genius for the profession in which he distinguished himself. It was in 1859 that he began the study of medicine and surgery. He entered the Bellevue Hospital Medical College, New York, from which he graduated in the session of 1862-3 with the highest honors. After attending one course of lectures he was received as a candidate by the board of examiners for the position of house surgeon in Bellevue and Blackwell's island hospitals. This position was won after a most searching examination in which he far outstripped old students. He served in that capacity for two years without compensation, but it was there that he laid the foundation of his wonderfully successful career. After leaving Bellevue hospital he served as surgeon in the United States army for a period of eighteen months, principally in Lincoln General Hospital at Washington, where he attracted attention by his operations.

Dr. Peck came to Davenport in 1864 at the age of 23. His talents soon won him recognition, and continued to do so as long as he possessed health. He was never content to follow beaten paths, always impatient to advance. He immediately identified himself with the Scott County Medical Society, and shortly afterward with the Iowa State Medical Society. He was secretary of the former from 1866 to 1868, and president in 1874. In 1876 he was president of the State society, and delivered the centennial address at the annual meeting held in Des Moines January 26, that year. The records of these societies bear evidence of his thought, study and attainments. He was a member also of the American Medical Association and of the American Surgical Association, holding positions of honor in both. He was faithful in attending the meetings of all these societies from first to last.

In 1868 he was elected professor of surgery and later of clinical surgery in the Medical Department of the State University. He became dean of the faculty, and that was his place when he died. Dr. Peck in reality founded the medical department as it is now known, and he worked zealously for every step of its growth, almost for every appropriation the general assembly made. With a small room or two and a dark cellar the work began. Professors at first worked without pay. The earliest graduating class, that of 1871, numbered 3; that of 1891 more than ten times as many. Dr. Peck was the strength and shield of the department at every place and point. Now wrestling with opposition schools and unfriendly legislators;—now securing material from far and near, giving lectures, holding clinics, traveling night and day,—devoting his time, his money and mighty energy to build up this department. He was aided by his faculty and the regents, but in the times of struggle and storm of opposition, the dean was at the

front—able, cool, determined to succeed. In time he gained legislative recognition and aid, but at no point in the struggle for more than fifteen years was there a place for a moment's cessation of vigilance. He did a noble work and his monument is an enduring one. It would take columns to tell the story; but more than five hundred graduates are in the field to attest it. His university work alone was enough for one strong man to accomplish, but this was only part of his active life.

On the first day of January, 1875, Dr. Peck was selected by the Chicago & Rock Island Road as its surgeon-in-chief, and given the task of organizing its medical and surgical department. He set himself to this great task with all the energy and ability he was possessed of. To-day there is not a railroad in the United States with a medical department so well organized or so efficient as that of the Rock Island. This statement is not made as mere compliment, but is based on the opinion of men who have studied and compared the different systems, and who have openly confessed their admiration of the work of Dr. Peck in this line.

While the direct impress of his influence was felt in medical circles in Iowa and surrounding states, he had more than a national reputation. One or two instances of many that could be given will illustrate this. In 1886, while traveling abroad, the doctor and his companions were in Buda Pesth. They called upon a high official of the Austrian government to pay their respects. It was the minister of public instruction. When the time came for an introduction, as soon as the name was spoken the minister said: "I know you very well, Dr. Peck, by reputation. No introduction is necessary." That was a revelation to the personal friend who was with him. At another time Dr. Peck was on his way from New Orleans, where he had attended an important medical meeting, to Chicago. The coach was filled with physicians. One of them asked of another: "Who is that man with the marked features who has just left the car?" "That," said the informant, "is Dr. Peck, of Iowa, one of the six most successful surgeons in the United States."

He died literally in the harness, working in spite of pain and weakness and weariness, almost to the very last. His life and work will remain a monument of what industry, devotion and skill can accomplish single-handed, and an inspiring proof that true surgical genius is not dependent upon any mere accident of situation and surroundings for its development even to the very highest pitch.

The autopsy showed his death to be due to valvular mischief, with aneurism of the aorta.

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#### **In Memoriam.\***

SUMNER B. CHASE was born in Limington, Maine, October 4, 1821,

\*By an unfortunate misunderstanding this obituary was omitted from the appropriate issue of *THE VIS*, but is now given in connection with the last paper ever written by the late lamented Dr. Chase, published at the head of our columns.

upon a farm about one-half a mile from Limington Corner. When about 4 and one-half years of age he was taken to Scarboro, Maine, where he grew to manhood, receiving his education in the common schools and at Limerick Academy, and at Parsonsfield Seminary, teaching while pursuing his studies.

He read medicine with Dr. Seth Larrabee, of Scarboro, an eminent physician in his time. He took a three-years' course of study in Bowdoin Medical College, whence he graduated in May, 1849. In June of that year he entered upon the practice of his chosen profession in the city of Portland. In May of 1854 he was a delegate from Maine to the American Medical Association at St. Louis.

In September, 1855, Dr. Chase came west, his family following him in November. He settled at Decorah. In January of 1856 he removed to Osage. In May of that year he was appointed postmaster at Osage, but he resigned in August of 1857, having been appointed Register of the United States Land Office. During his residence of more than thirty-five years in Osage he has filled many positions of honor and trust. In 1880 he was elected President of the Iowa State Medical Society. In 1884 he was chosen a delegate to the National Democratic Convention which nominated President Cleveland.

On the 3d of September, 1846, he was married to Miss Almira B. Cobb, of Limington, Maine, by whom he had three sons and two daughters, all of whom, except the third son, with their mother, mourn his departure into the unseen world.

As a physician Dr. Chase had more than a mere local reputation. Few physicians in Iowa were better known throughout the state than he. For nearly half of a century he was an earnest student of medical science. He never was idle. He prepared many able papers for various medical journals. At the fortieth annual session of the Iowa State Medical Association, recently held in Waterloo, he read a paper on "The Borderland of Insanity," which many of his medical brethren regard as the crowning effort of his life.

His mind was of a broad and liberal cast. In his reading and studies he gleaned from all the world's knowledge, and assimilated that which seemed to him the best. He was not dogmatical in his opinions, but his decisions were reached by a quick process of reasoning and that wonderful intuition which enabled him to group at once the salient points of a case.

His was not merely the cold and formal service of the polished M. D. His sympathetic nature pervaded the sick-room. The influence of his cheerful nature was a very "Elixir of Life." In the state, as well as at home, he took high rank, and in Northeastern Iowa stood at the very head of his profession.

He was universally loved and revered by all who knew him, whether

professionally or personally; and none have more truly deserved that simple but exquisitely beautiful epitaph, "He went about doing good."

## READING NOTICES AND MISCELLANY.

PROPRIETARY REMEDIES IN BULGARIA.—There exists a law in Bulgaria to the effect that any one who sells a proprietary remedy is liable for damages, if the preparation is advertised to cure a disease and it does not do so. The seller may even be imprisoned for a larger or shorter period of time for having advertised statements not in accord with truth, and prejudicial to public health. If such a law were to be passed and applied in this country, the patent medicine men would have to shut up shop in a short time.

ERASMUS GARROTT, M. D., 751 Washington Boulevard, Chicago, Ill., writes: "I have tried Anderson's Antiseptic Vaginal Capsules, and think they are just what is needed in the treatment of all inflammatory vaginal trouble, and also in uteritis. The largest size is very beneficial in prolapsus. They are certainly a most convenient and ingenious mode of applying medicine to diseased parts, and I shall use them in my practice."

DR. B. M. RICKETTS, Cincinnati, O., writes: "*Gentlemen*,—After a careful test of the merits of your New Absorbent, "Oulo-Kutun," I am so thoroughly convinced of its superiority over absorbent cotton, that I shall always give it the preference in my practice. It has an *elasticity when wet* which cotton does not possess, and which is so essential for comfort and constant use," See advertisement on 4th page of cover.

Mrs. C.—"Doctor, you were at the last illness of my eldest boy?"  
Doctor—"Yes."

Mrs. C.—"You also attended, professionally, my first husband, who died?"

Doctor—"Yes."

Mrs. C.—"Well, my second husband is sick, and I would like you to see him through, too."

The introduction of "Kumysgen," or the Kumyss tablets of Reed & Carnrick will be hailed as a boon by the profession. The great value of Kumyss in all conditions of defective assimilation is recognized the world over; but the skill and care required in its preparation, and the difficulty of keeping it any length of time are so great that it has hitherto been within the reach of only a few. Now, however, the mere dissolving of two or three



tablets in water will furnish, at once, a delicious, effervescent Kumyss of of superior quality and flavor. A mere enumeration of the conditions in which it has been found useful will suggest its wide range of value.

Clinical tests gathered from every quarter of the globe attest its special value in all cases of gastric and intestinal indigestion or dyspepsia, pulmonary consumption, constipation, gastric and intestinal catarrh, fevers, anæmia, chlorosis, rickets, scrofula, vomiting in pregnancy, Bright's disease, intestinal ailments of infants, cholera infantum; for young children and for convalescents from all diseases.

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SIR MORELL MACKENZIE wants \$10,000 damages from the Soden Mineral Spring Company, because it used his name in its advertisements without his consent.

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"I KNOW I've got a vein of poetry in me, sir," confidently asserted the young man to the editor, "and all I want is a chance to bring it out. What would you suggest, sir?"

"I think you had better see a doctor and have it lanced."

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WE have received from the Cudahy Packing Company, of Omaha, a sample of their extract of beef, "Rex Brand." This product belongs to that class made by the "Liebig Process," but is a very great improvement on those hitherto produced. It is free from objectionable odor, is but slightly salted, and shows a complete absence of that burnt taste, which has always been a marked feature of the preparation known as "Liebig's Extract," and extensively advertised in the daily papers. An analysis of the Rex brand states that it contains 53.61 per cent of combined albuminoids. We find it to be of an agreeable flavor and very palatable, and consider it to be the best extract of its kind that has so far been placed on the market.—*Occidental Medical Times, Sacramento, Cal., October, 1891.*

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CIRCUMCISION IN EXCELSIS.—A remarkable custom obtains in Turkey, says the *Medical Press*, which is carried out at the expense and under the direction of the Sultan. It appears that three of the Sultan's sons are "ripe for the operation of circumcision," whatever this may mean, and custom enjoins that all the other little Turks in the empire who are of or about the same age as the young princes, shall submit to the same procedure at his majesty's expense. In order to make due provision for this interesting event, a palace is fitted up for the occasion. The patients, who are said to number 5,000, are housed, clothed and fed for a week out of the Sultan's privy purse, and at the end of that time each receives a gift of money before being sent back to the bosom of his parents.

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MESSRS. RENZ & HENRY: My experience in the use of your "Three

Chlorides" compound, I find is very convenient formula, scientific, progressive, and not disappointing in its actions; and applicable in a large class of cases, because of easy assimilation and acceptability by the most delicate stomach. It has been of marvelous benefit in a case of chronic diabetes in my charge, increased the blood corpuscles, and otherwise by its alterative and tonic action; the lupus has about disappeared from the urine, notwithstanding the patient has been on a full generous diet. I think your combination will wear well with the profession. It will commend itself.

Very truly, W. W. HESTER, M. D.

MAN'S SUPERIORITY TO ANIMALS.—It takes four men to give an elephant castor oil, the dose being  $\frac{3}{4}$  cxxii. We have known it to take three women and two men to give a small boy castor oil, dose only  $\frac{3}{4}$  j.—*Ex.*

DIOS CHEMICAL COMPANY: "I find your Neurosine a valuable nerve tonic. I also find it the best remedy for epilepsy I have ever tried, and in chorea I look upon it as the best."—*A. F. Watkins, M. D., Polosi, Mo.*

At Marseilles, two hundred years ago, the fee for a doctor's visit was twenty-five cents. For a consultation the fee was one dollar.

"During the prevalence of influenza last winter, all my cases of pneumonia were treated by the use of hot poultices and the administration of the Febricide Pills. These pills contain quinine, acetanilide and cocaine. There is nothing secret about them, and the object of this note is not to claim superiority for any special maker of pills, but simply to advert to the merits of the formula. While the pills made by the Health Restorative Company were employed for convenience, and proved entirely satisfactory, any reliable retail druggist could prepare them quite as well except for the coating. But the combination is one of very great value, combining, as it does, an efficient antithermic with a cardiac tonic and a third drug quinine, which shares in the action of both the others, and has a special effect in combating the tendency to suppuration. Perhaps in no disease do we meet with the indications for this combination so perfectly as in pneumonia. And in the pneumonia prevalent last winter we had an opportunity of putting our methods of treatment to the most severe test offered during the present generation.

My records show that during the grippe period I attended twenty-three cases of lobar pneumonia, all of which recovered. Ten of these were hospital cases; the remainder occurred in my private practice."—*Wm. F. Waugh, M. D., in Times and Register, December 20, 1890.*

### *The Sixth Annual Announcement of the* **CHICAGO POLICLINIC**

Is now ready for distribution, and will be mailed on application. Address the Corresponding Secretary, MOREAU R. BROWN, 174 Chicago Av.

# THE VIS MEDICATRIX.

THE JOURNAL OF

THE IOWA STATE MEDICAL SOCIETY.

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APRIL, 1892.

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## EXTRA-UTERINE PREGNANCY.\*

D. C. BROCKMAN, M. D., *Marengo.*

During the past summer a patient was placed under my care with a "probable" diagnosis of extra-uterine pregnancy in the fifth month. Being desirous of doing what was best for both mother and child, I very carefully reviewed the recent literature of the subject and wrote to several authorities regarding the safest mode of procedure, with the result of finding there are no plain charts for sailing in this dangerous sea. The case in the meantime proved to be a normal pregnancy in a uterus laterally displaced by fibroids, but it occurred to me that it would be both curious and profitable to carefully investigate the status of treatment by inquiring of a number of standard authorities. Thereupon I wrote to about twenty of the most eminent obstetricians and gynecologists in the world, and in reply received their ideas regarding the most important points of treatment.

These opinions I have tried to arrange so one can readily see how the best men in this and other lands treat this condition. That the subject does not receive the attention that it should from the general practitioner, goes without saying; that it occurs far more frequently than is generally supposed is equally true. In the cities it is not uncommon for operators to see ten or twelve cases every year. Dr. Formad, in two years service as one of two physicians to the coroner of Philadelphia, discovered nineteen cases of extra-uterine pregnancy in women whose sudden death had been investigated by the coroner, and it is safe to say that during the same period there were thirty five or forty women who died from the same trouble, which had not been diagnosed by the attending physician. Making in the neighborhood of forty cases a year in that city, who die without a diagnosis of the true cause of death.

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\* Read by title.

Dr. Parvin estimates that ectopic gestation occurs once in 500 cases of pregnancy. Dr. Baldy, of the same city, has made a careful estimate of the number of deaths from rupture of the sac that occur each year in the United States, and places it at about 500, or one to every 100,000 inhabitants—at which rate there are annually fifteen or sixteen women in this fair state of Iowa who lose their lives by this relentless calamity. But I venture to suggest that not one in five of these cases is recognized either before or after death.

To call your attention to the importance of this subject and point out the most approved treatment as deduced from a consensus of the opinions of many of the best operators in the world, is my excuse for appearing before you.

As to whether the abdominal or ovarian varieties of ectopic pregnancy ever occur primarily as such, I leave for the theorist and extensive operator to settle—for while I cannot affirm that they may not occur, I am able to find a record of but few cases so classed that were examined before the fourth month, *i. e.*, before rupture of the tube or before the sac has enlarged sufficiently to absorb or draw in the ovary in forming its walls.

I find many more arguments explaining the possibility of their existence than I do of reports of cases examined. So it is safe to say that practically all these cases begin in the tubes, from which they are expressed if lodged too near the abdominal end, or are washed out of the ruptured tube into the peritoneal cavity and there continue to grow, by either of which means we get the abdominal variety. If the ovum reaches a point near the uterine end of the tube we find the tubo-uterine or interstitial variety. Perry was of the opinion that pregnancy may continue in the tube to term and cites the cases of Speglenberg and Sextorph to prove it. These views are held by many obstetricians of the day.

Just when, where or how fecundation occurs we do not know, and until we know more about normal conception we are not in a position to be dogmatic regarding the cause of abnormal forms of gestation. The most generally accepted theory, and probably the true one, is that it results from disease or deformity of the tube that prevents the ovum from reaching the uterus, but does not prevent the spermatozoa from traversing the tube. As is well known, the Fallopian tubes are lined by ciliated epithelium, the function of which is to convey the ova from the ovary to the endometrium, and Tait has pointed out the fact that if this lining is destroyed by inflammation the ova would have no means of reaching the uterus, while the errant spermatozoa would have nothing to hinder them from wandering out along the tube where they might meet and fertilize the ova.

This is probably the way in which a great majority of cases occur, but a fibroid or ovarian tumor pressing on the tube, a sharp bend in the tube and

many other accidents might occur that would lessen its lumen and produce like results.

This does not account for the frequently quoted case of Lecluyse, where an abdominal pregnancy occurred through an opening in the uterus—result of former Cæsarian section—nor Koeberle's case, which occurred after hysterectomy, in which the cervix and ovaries were not removed, and a score of other interesting and anomalous cases.

As the impregnated tube lies along the upper border of the broad ligament about one-third of the sac dips down between the folds of peritoneum forming the ligament, while two-thirds will be covered only by the peritoneum that separates it from the abdominal cavity.

Now if in rupture the solution of continuity takes place in the upper part of the sac, the contents of it will be poured out into the peritoneal cavity, where the foetus may possibly continue to develop, but as the sac (unfortunately for both foetus and mother), usually ruptures through the placenta, the blood vessels are torn across and profuse hemorrhage occurs into the abdominal cavity, from which a very large majority of the women die unless saved by prompt surgical interference.

An uncertain proportion of cysts rupture downward into the broad ligament, and as here the space is limited by the walls of the ligament, there is not room for a great amount of blood, and the woman usually survives the rupture, while the foetus may die and be absorbed along with the effused blood, or it may live and continue to develop below the peritoneum forming the "subperitoneo-pelvic" variety of the French school. When the foetus survives rupture, be it within or without the peritoneal cavity, it usually forms a sac for itself, but it may lie in the abdominal cavity without any membrane, as in Mr. Jessop's case. The placenta may remain in the original sac, or it may also be washed out into new quarters, where it attaches itself to any contiguous tissue, and the gestation proceed to term.

In either case unless pregnancy is intentionally or accidentally interrupted before term, symptoms of labor come on and pains continue for several hours, during which time the foetal movements are unusually active. Then they grow weaker, the foetal heart beats more rapidly and with less strength, and soon all signs of foetal life are extinct.

This is followed by a diminution in size of tumor with more or less disturbance of the physical condition of the patient. The foetus may remain for years, sometimes over half of a century, causing but little trouble, forming the curious lithopedion, or at any time after the false labor, the sac may suppurate and kill the patient by slowly poisoning her, or open and discharge its contents as a large abscess.

There exists a great difference of opinion regarding the *prognosis* of ectopic gestation, but most observers look upon it as the most murderous of all calamities that are associated with maternity. Perry shows that a large

majority (67 per cent) of the 500 cases he analyzed died. And it is probable that there were as many during this period that died without a diagnosis as were discovered and reported. The period of rupture is the most dangerous. Parvin says: "In almost all cases the mother, unless saved by a surgical operation, dies within a few hours."

Tait says: "Ectopic gestation-cysts rupturing into the peritoneal cavity all died till, in 1883, I began to remove them by abdominal section."

I was much surprised to learn that Jaggard recently stated that in his opinion not one case of extra-uterine pregnancy in five proved fatal. This is surely not in keeping with past experience, and he will find but few observers willing to accept it. Off-hand statements like this have but little weight when put against the experience of the obstetricians and gynecologists of the world.

Most European observers claim they have never been able to make a diagnosis before rupture, and in a great majority of cases there is no doubt the nature of the trouble is not suspected till the cyst walls have given way, but in this country early diagnosis has been made so frequently that it is no longer a matter of dispute.

The early symptoms simulate normal pregnancy, but it usually follows a period of sterility; ordinarily is attended by amenorrhoea, nausea, changes in breasts, darkening in color of vaginal walls, notably on side in which pregnant tube is situated; there is an unusual amount of pain on one side of uterus; this of a tearing, boring character, but unfortunately women are so subject to pelvic pain that they too frequently consider this as a part of the regular programme, and do not call physician's attention to it.

From the sixth to eighth week a slight and frequently persistent hemorrhage from the uterus occurs, which in most cases is accompanied by the discharge of a uterine decidua.

A carefully conducted vaginal examination will reveal a tumor from the size of an egg to that of an orange on one side of or behind the uterus, usually movable, closely simulating an ovarian or parovarian tumor, but generally more tender than either and located nearer the uterus.

It is more oval than either hydro or pyosalpinx and not attended by fever, as are collections of pus in this region. With such a history and physical condition at this early period a probable, but generally not positive diagnosis may be made.

Some time between the fifth and twelfth week, possibly later, the patient will (probably while taking some active exercise) be seized with severe pelvic pains, which grow rapidly worse and are soon followed by cold surface, feeble, quick pulse, and dangerous collapse; and if not promptly relieved by surgical interference will, in a great majority of cases, sink from internal hemorrhage. This is the time when every practitioner should be

able to make a diagnosis and either himself operate to save his patient or call some one who is competent.

Doctors claim they are "not up" in this subject because they never expect to see a case of it; yet, if the estimates of Parvin, Baldy and a score of others are correct, there is probably not a man among us who has practiced twenty years, who has not been called upon to treat a case of ectopic pregnancy at some time.

Besides the cold, clammy skin, small pulse and indications of most profound ischæmia, we find on examining the pelvis, in the case where rupture has occurred down into the broad ligament, a tense cyst of considerable size on one side of the uterus, which, if we find remains tense and defined, we know is a broad ligament hematocele, and as the surrounding tissues are pretty firm they will probably resist blood pressure and soon stay the hemorrhage. It is only when the ligamentous walls give way and allow the blood to flow into the subperitoneal tissue, that this variety results fatally. But where the effusion occurs in the peritoneal cavity, examination discovers an illy-defined fullness in the pelvis, with fluid in the abdomen, but this last is not always discovered as the blood is in a condition least favorable to coagulation.

The cardinal diagnostic points are a history of suppression, following a period of sterility, pain, rupture of the sac, and afterward discovery of tumor in pelvis. Physical examination will show uterus enlarged, cervix soft, canal patulous, uterus slightly movable.

Frequently the foetal extremities can be distinctly felt through the vagina, as if separated only by thin membrane. This characteristic is also noticeable on abdominal palpitation. The foetus feels as if it was just beneath the skin, and prolonged palpation fails to develop uterine contractions. But these latter signs are not conclusive, as in my case of suspected trouble the foetal limbs could be defined as clearly as if only the skin intervened, and it seemed impossible that it could be within the uterus, but as the case advanced the uterine walls thickened up so that I could feel rhythmic contractions. In this case the large fibroids in the left side of the uterus caused the expansion to take place at the expense of the right side, which accounts for the thin uterine wall; Such mistakes frequently occur; scarcely any authority fails to mention cases.

The *treatment* of ectopic pregnancy differs with its periods of development and accidents. The first group consists of cases seen before rupture. The second, those seen immediately after rupture. The third group, cases where the foetus survives rupture. The fourth case, seen only after foetal death. In order to arrive at the best and safest method of treating the various groups I wrote the following eminent operators in this country: Thomas, Emmet, Skene, Lusk, Mundé, McLean, Battey, Engelman, Byford, Sutton, Harris, Price and Goodell.

In Europe, Wells, Tait, A. Martin, Gusserow, Kaltenbach and C. Braun, and received from each very courteous answers to the following questions :

If you should discover a case of extra-uterine pregnancy before the twelfth week would you—

- (a) Attempt to destroy fœtus by electricity ?
- (b) Operate at once for its removal ?
- (c) Wait for rupture of the sac ?

*Second.* If you should see the case at fifth month would you—

- (a) Operate at once for its removal ?
- (b) Wait for viability.
- (c) Wait for death of child ?

*Third.* If you attempt to save the child, would you—

- (a) Attempt to remove the placenta ?
- (b) Leave the placenta and drain.
- (c) Leave placenta and close abdomen ?

Replying to these questions Emmet, Thomas, Mundé, Battey, Skene, and McLean inform me they would attempt to destroy fœtus by electricity where seen early. Sir Spencer Wells would generally use it when seen early. Sutton would use electricity if patient was very weak or not a fit subject for laparotomy, otherwise remove ovum.

Engelman, who was formerly a warm advocate of electricity, says he now prefers the knife except in very favorable cases. Harris favors the use of the knife, as electricity is uncertain and apt to be disappointing. Byford would use electricity before the eighth week, but from eighth to sixteenth week would remove tube.

Jos. Price would "*never* use electricity or any other means of destroying fœtus, but remove the murderous thing whenever found from the first to tenth month."

Baldy, Goodell, Tait, A. Martin, Gusserow, Kaltenbach and C. Braun would not use electricity, but remove the ovum at once. None would use any other means of destroying fœtus or risk waiting for rupture, all prefer stopping gestation as soon as possible when discovered early.

Regarding the mode of procedure in cases seen at a later period, *i. e.*, where the patient and pregnancy have survived rupture, and before the period of viability, there is a like diversity of opinion. Harris, Price, Case, Braun and Gusserow would remove ovum by operation as soon as diagnosis was made.

Wells thinks it "safest to remove ovum," but adds, "there might be a case where the wishes of patient or friends would favor waiting for viability."

Kaltenbach would wait for viability, but adds, "it is safest to operate six weeks after death of child."

Gusserow would operate only when case was in favorable condition ;



otherwise wait for viability, but if it is not very important to save child, would wait until death of child.

Skene would wait until after death of child, as this gives best chance of recovery for mother.

Tait would do all he could to save living child if it had survived rupture.

Goodell, Byford, Sutton, McLean, and Emmet would wait for viability and attempt to save both mother and child.

Engleman would operate at once if child was feeble or mother suffering, but if conditions were favorable, wait for viability.

Batthey says: "If the bowels are obstructed or symptoms are grave, operate at once; otherwise wait for more urgent symptoms." \* \* \*

The management of the placenta has been a vexed question with all operators who attempt to save the child or operate soon after foetal death and before its exfoliation or absorption.

Heretofore the question has been when to operate, but now it is "how to operate." To deal properly with the sac and placenta requires all the surgical skill and ingenuity that can be brought to bear on the case.

Dr. Emmet says: "Experience seems to teach that it is safest not to attempt to remove the placenta."

Harris advises us "if the child is alive to excise the sac entire, but if the child has been dead some time remove the foetus and await the exfoliation of sac and placenta."

Carl Braun and A. Martin would remove placenta at time of operation. T. G. Thomas would leave placenta and drain.

Mundé would "remove placenta if possible; if not, leave it and drain."

McLean would leave placenta and drain.

Wells thinks it is safest to leave placenta and drain.

Engleman would "probably drain, as removal of placenta can be accomplished only in very favorable cases."

Kaltenbach, Gusserow and Skene would remove placenta in all cases where possible; if not, leave it and drain.

Robert Batty says "leave placenta undisturbed and use rubber drainage tube."

Sutton says: "No hard and fast rules can be laid down regarding the treatment of placenta, but officious disturbance of it is to be deprecated and drainage is imperative."

Byford says: "Would attempt to remove placenta in some cases; in others would close and drain if placenta partially detached or removed. If placenta firmly attached and peritoneal membrane in good condition, leave placenta and close without drainage."

Goodell would, if possible, remove entire sac; "if this could not be done, should pass cobble stitches through sac below placenta and remove

the latter. Failing in this I should put in large drainage tube, or else try Tait's latest plan of hermetically closing the wound, and treating any collection of pus as an ordinary abscess."

Joseph Price would remove placenta in some cases, in others leave it and drain; while in a third group, empty it of blood and cut cord short and stitch sac closely about it.

Tait would "wash out and leave placenta, close sac and wait for any disturbance that might occur."

Lusk thinks the best results have followed the plan of ligation of the large vessels going to sac and removing it entire or in great part, but adds, "No operation is ideal or can be used in all cases."

These are only the opinions obtained by correspondence, and do not include the voluminous contributions to recent literature by many standard authorities. If we carefully weigh the subject as presented to the student, we can see that order is coming out of chaos and soon the treatment of these cases will be better understood and successfully executed by the surgeon of average skill and intelligence.

The friends of electricity argue that it is less dangerous, less frightful to patients, and gives better results in that it does not mutilate the patient. The surgeons who oppose this measure claim that electricity is uncertain in its results; not without danger, as the cyst may be ruptured by the application, or may suppurate if foetus is killed. That the mortality is greater after its use than after primary excision of sac. That with the element of uncertainty of diagnosis which exists in the early months, the only scientific and justifiable mode of procedure is to open the abdomen and remove the abnormality, whatever it may prove to be.

To me it appears that in a hospital where there is a staff constantly at hand, able and ready on a moment's notice to open the abdomen and remove the tube if alarming symptoms supervene, electricity might be tried on carefully selected cases, but we who do a country as well as town practice, have no right to risk so uncertain an experiment.

If we give our "suspected" case an electrical seance and leave her for ten or twelve hours, as we would frequently have to, we ought not to be surprised to find her collapsed or dead from hemorrhage that we might have prevented by proper treatment. Holmes, of Chicago, shows us that in a large majority of cases, the contents of pregnant tubes are septic and hence not safe to leave in the pelvis, while with a mortality of 4 to 6 per cent in early operations (Wylie says we should not have over one death in 200 to 300) and knowing that our case is about as likely to prove to be a hydro- or pyo-salpinx as an ectopic cyst, I do not think we are justified in doing otherwise than removing the diseased mass at the earliest moment.

All agree that the only treatment after rupture of sac into the peritoneum is its prompt removal, and here is an exception to the general rule in

surgery not to operate during shock, for our patient is suffering from shock due to hemorrhage, that will increase till the loss is controlled. Where the sac has ruptured down into the ligament, causing a broad-ligament hematocele, the case may be watched, and unless the ligament gives way, or extensive extravasation occurs, it may be left to nature, or the indications may be met as they arise.

How to proceed after the fourth month is a very serious question. During the four and five months the entire sac can usually be removed with but little danger to the mother, but the question arises as to whether or not the child has any claim upon our consideration. Although formerly the chance of saving the child was very small, there is no doubt that by the improved methods of operating, many of the children may be saved, and when we weigh the uncertainty of diagnosis even at this period, we may well hesitate about its removal; and here, I believe, the mother's wishes should go far toward deciding which line to pursue. If she is willing to take the risk for the sake of her offspring, and is in good health, and the foetal movements and heart sounds indicate a strong, vigorous child, we should wait till the beginning of labor, and then remove the child, but where the patient is the mother of a large family, we should remove the sac as soon as discovered up to the sixth month. Just how to proceed after this period, in order to give the mother the greatest chance for life, is not definitely decided, but probably to wait six to ten weeks after the death of child would give the least maternal risk.

Tait has succeeded in several such operations, as have several other surgeons, and not a few now recommend this course. We are told Tait has adopted the first child he saved in this way, and hopes this child will succeed him in his work.

There are two avenues of attacking the sac either before or after death of child, by way of the vagina or through the abdominal walls, but I very much doubt, in view of the recent investigations, writings of such men as Herman, Tait, Fenger and others, whether we are ever justified in resorting to the vaginal operation; surely not unless we are certain that the placenta is so situated that it will be incised in abdominal section and when the foetus presents by one extremity, preferably the cephalic.

As it is not safe in vaginal section to attempt to remove the placenta on account of hemorrhage that is almost certain to follow, it is best to pack the sac with antiseptic gauze and await exfoliation, and when septic trouble develops, as it does, use repeated and long continued irrigation. If necessary continue irrigation for two or three days constantly. Unfortunately these cases nearly all succumb to septicaemia in spite of any treatment.

The mortality after abdominal sections has diminished so rapidly of late that it is now undoubtedly the operation in these cases. As to the time of

operating and mode of treating the sac and placenta, each case must be studied by itself.

In the subperitoneal variety the ideal operation would be to make a curved incision along the crest of the ilium, open sac, and remove the child without opening peritoneal cavity. This operation has been done in Europe, and I think should receive more attention in this country than it has. Where this is not feasible and in the abdominal variety we should locate the placenta accurately before operating and thus avoid it, in making our incision.

The line of abdominal incision will be decided largely by placental site, but when possible should be in the *linea alba*. As it is almost impossible to peel off the placenta without causing a fatal hemorrhage, it is advisable not to attempt it, but either ligate the spermatic, uterine or other arteries that supply its territory as suggested by Olshausen, and then remove it and as much of the sac as possible, or as Goodell and others recommend, surround the placental site with cobbler's stitches, thus shutting off blood supply; then cut away as much of sac as possible.

Another mode of treating the sac, and the one usually employed, is that of leaving the placenta and employing drainage, but this is not in keeping with the advance made in surgical practice and teaching of to-day. It leaves a large septic sac with decomposing placental mass to slowly poison the victim, and these cases far too often either die from septic fever or from hemorrhage resulting from removal of placenta. It seems to me that Tait's method of treating the sac will soon supersede it. I think that if I had such a case to-day to operate upon, I should, in case the placenta could not safely be removed, disturb the sac as little as possible, but wash it out and drain all the blood from the placenta, cut short the cord and close the sac hermetically as Tait advises.

With our knowledge of germicides and our means of rendering ourselves, our instruments and everything about us aseptic, there is but little need of the sac being infected.

In operating after the death of the child and closure of the placental sinuses, much the same rules are to be followed, but here we can frequently remove the placenta without risk of hemorrhage, but in any case where the placenta has not entirely or largely exfoliated it is best not to attempt its removal, as such cases have resulted fatally as late as four months after foetal death.

## WHAT SHALL WE DO TO BE SAVED?

OSCAR BURBANK, M. D., *Waverly*.

This is a question as old as the religious faith of our fathers, nor has the intensity of its interest diminished during these twenty centuries. It no longer relates exclusively to the hereafter, but concerns all the affairs of the present life. It has become the great question of every party, political or religious, and permeates every occupation of labor. The organization of every profession, of every trade, of every occupation, into societies with set laws, rules and obligations, shows plainly enough the drift of popular thought at this time. The avowed object of all these dissimilar associations is for mutual protection, a more fraternal feeling, a general discussion of fair wages, mutual improvement, and efficiency in the various vocations of life.

All the labor movements and strikes are only vast currents of common thought moving in one direction, guided by the common instinct of self-preservation.

The medical profession is no exception to the general tendency for every occupation to organize for its own salvation, as the county, city, state, national and other medical societies bear witness. Looking over the advertising columns of the medical colleges we find the general tendency is for a fuller and more perfect medical education in those whom they graduate. The polyclinic schools, schools for practitioners of medicine, are so many fingerboards pointing to the want of medical efficiency. All sorts of medical associations are clamoring for a higher state of knowledge and efficiency in the new-comers, and under this pressure many states have made laws to examine into the qualifications of all new doctors coming into the state, but I have never heard of any law unfavorable to the old medical snags that lie hidden in the stream of medical life to wreck whoever is so unfortunate as to run against them.

In the river we blow up snags with dynamite, but in our profession we silently wait for the old man with the scythe. Is this honest and fair? Is it right that a man who has quacked it for a dozen years shall, on that account, and on that alone, be legally adjudged a legal practitioner of medicine, while another man with all the qualifications for his business must be examined by the state board or step down and out?

Some years ago Minnesota and Illinois enacted Medical Practice Acts, with state boards of examiners, with the happy result, to them, of unloading a part of their incompetent practitioners upon the state of Iowa. We petitioned the legislature, asking for laws unfavorable to this class of medical men, but the legislators replied substantially that it was not the

business of an Iowa legislature to create a *privileged class*, and they did not.

In looking over the medical directory of Iowa for the year 1883 and 1884, I find there were 1,727 men with diplomas and 1,034 who had none. About five quacks to eight diplomas. What about these diplomas, and who granted them? Some were granted by the Hahnemann institutions, some by the Eclectic, some by the Physio-medical, and a few by the Buchanan institution. If to these we add the M. D. belonging to the liars (this word has no reference to a musical instrument) it will be about fair to assume that half of the doctors were never entitled to a diploma.

In my time, I have seen hung up in physicians' offices sheepskins upon which were inscribed the righteousness of the name therein mentioned and certified to by learned professors. Now what this part of the sheep's anatomy had to do with the doctor's qualifications for the practice of medicine after more than forty years of trying to find out, I freely confess I cannot understand. Many years ago a doctor died in our place leaving his diploma behind. Some years after this an old medical snag consulted me in relation to purchasing this diploma. I inquired of him what use he could make of a diploma, if he would use it to make an infusion, or an extract, or pills, or powders. I soon found out that he had no idea what a diploma was. He seemed to think it contained the essence of all medical knowledge, a sort of little god on wheels, that would be handy to consult when shadows fell across his way.

If this old quack could have lived until the Medical Practice Act of Iowa was passed he would have added one more to the legal practitioners of medicine in Iowa. It ever the legislature of Iowa passed an act that did not mean anything, and was not intended to mean anything, the Medical Practice Act is one.

When the Medical Practice Act of Illinois went into effect on May 1, 1882, of the 8,951 practitioners of medicine in the state, 2,725 quit the business or left the state, giving Iowa her share of the dump. The Medical Practice Act of Iowa made medical ignorance respectable, by making it legal, so nobody quit the business or left the state. These fellows are asking us, "what are you going to do about it?"

If the medical act means anything it is that time sanctifies a wrong, for if five years of charlatanry had just ended when the act went into effect, that time, in the judgment of an Iowa legislature, constituted a legal qualification. This is a free country, and class legislation is offensive. Does the legislature believe what it practices? Look at the sanitary laws. If a contagious disease exists in a house, the house is flagged with a red flag, a danger signal. Here the individual right yields to the public good; but when one of these unqualified medical men goes about the country, more dangerous than any contagious disease, what Iowa legislature ever thought

of flagging him? A little pile of manure in a back alley, or even on your own lot, causes a visit from the health officer. Here, again, personal rights yield to the public good. The dunce has as good a natural right to the head of his class as any other member of the class, but if he gets there he will have to win the position. Every aspirant for legal fame must be examined. No five years of being the oracle in his vicinity admits him to practice. Our school teachers must pass a satisfactory examination before they can teach the humblest child. These examinations must be repeated yearly, beside the institute attendance of about a month, all involving cost to the teacher, and all for the public good.

Why should the medical profession be an exception to the general rule? Can it be that the representatives of the people regard it as a grand humbug from A to Z?

Is it any use to groan because the people give their patronage to unqualified practitioners of medicine? When we have groaned and scolded and resolved, who has cared or paid any attention to it, and why should they until the regular profession of medicine can demonstrate to the public their superior claim upon public confidence?

With humility and becoming modesty I venture to suggest a remedy which I think no legislature of Iowa would regard as class legislation. It is a square deal all around. With this idea clearly before them, I think no legislator will refuse his vote to a Medical Practice Act, whose object clearly is the public safety, and treats every medical man alike. It is to do unto others as you would have them do unto you. Some centuries before the Christian era this idea was propounded in the Roman senate, and later it reappears in the gospels. It has lost nothing of its beauty or intensity as it has rolled down the ages. It is still a yard wide, dyed in the wool, and warranted not to fade.

My plan is to legally organize an able board of state medical examiners, who shall examine every medical man and pass judgment upon his qualification for the practice of medicine, letting nothing influence the results except the answers to the questions. Whoever passes, give him a diploma, and whoever cannot pass, let him step down and out, until he can.

In my opinion the trade-marks upon too many doctors' signs would disappear, for then they would be prouder of their State Board diplomas than of the flaunting lie that now disgraces their signs, and if a doctor had a peculiar notion as to how a medicine wrought a cure, or how much or how often it should be taken, it would be regarded as his private judgment and nobody's business but his own. The fact that a doctor holds a diploma from an able state examining board is at least a public guarantee that he is fairly up in medical science, and I think the medical profession would not refuse him consultation because he was a crank in *materia medica* or any-

thing else. Under such a rule or law the state of Iowa would secure a more efficient medical service than any state ever had.

I would give every one a year, or some reasonable time, to prepare for the examination, and if in that time he cannot win his diploma it should be evidence that he was so ignorant and incompetent that justice and the public safety require him to step down and out. I would lead the old medical fossil out into the stream of medical science as it flows to-day, giving him a fresh baptism in its pure waters, renewing his faith in medical works.

If the public good requires school teachers to be examined every year, I am of the opinion that the public safety also requires every physician to be examined at stated times. I have several certificates over fifty years old, saying that I was qualified to teach a common town-school. Would your superintendent of public instruction permit me to teach a school on such a certificate?

I have a diploma over forty years old, granted by the medical department of Harvard University, Mass., but is that any evidence that I am up with the science of medicine, and qualified for its duties to-day?

I well know that my suggestion, by some men having diplomas hanging in their offices, as a sort of fetich, will be viewed with holy horror. To them it is wellnigh irreverent to call in question the soundness of the hoary custom and sanctified precedent that allows one to fall back in dignified silence upon an old diploma which to-day means nothing, instead of answering the question which this marching age with its battle cry of onward, asks of every man. "Are you posted" in your special line of work? Having presented these suggestions, I again ask you "What Shall we do to be Saved?"

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#### PRESIDENT'S ADDRESS.

*Iowa Public Health Association, Des Moines, January 28, 1892.*

A. W. CANTWELL, M. D., *Davenport.*

As this is our first meeting, the query with many will be, who are we? and what is our object? Our name to some will be sufficient, but others of a more inquiring turn of mind will seek further. To these we will say, a few of us, about thirty or more, health officers of Iowa, organized this body at Waterloo last April, and as a result, this convention was appointed. To this meeting was invited every health officer in the state; indeed every person interested in sanitary science, preventive medicine and hygiene, as we believe such gatherings must tend to enlighten the people in regard to the laws that govern health and longevity, and awaken them to the fact that sanitary legislation is an absolute necessity in this enlightened age. It has been shown beyond cavil that where the light of sanitary knowledge



sheds its beams, sickness flees and even death itself waits for its victim till the full three score years and ten allotted to man is told. Indeed none can deny that the observance of all the laws of health have an infinite potency in prolonging life.

Experience has taught us that to bring any measure of importance before the public, a convention is the best mode of doing so. Hence to this convention, as the *Bulletin* expresses it, have been invited "Every physician, clergyman, lawyer, plumber, sanitary engineer, and the state and all local boards of health, school teachers, mechanics, and any one interested in the prevention of sickness."

Our object may be briefly expressed in the words of one of our leaders who "has gone to his reward." "To secure for all the most perfect action of body and mind, so long as it is consistent with the laws of life; to help all to make growth more perfect, decay less rapid; life more vigorous, death more remote."

Our great and prosperous commonwealth can proudly boast of the fact that it has a fewer number of illiterate people within its limits than any of the sisterhood of states. Why not let us make it our pride to make it the healthiest state in the Union? We have much in our favor. Our climate does not run to such extremes as many others. God has given us our great, broad prairies, over whose plains sweep the pure air of heaven itself, untainted by the breath of pestilence, and we are not scorched by parching winds or long continued droughts, nor deluged by rainy seasons. Our rivers, from the "Father of Waters" to the smallest stream, with few exceptions, have rapid currents, so we are not subject to the miasma that arises from sluggish or overflow streams. One step further needs to be taken, and that is to establish the very best system of public hygiene that can be devised by the combined wisdom of science and art. One of the most perplexing problems we have to deal with is our sewerage. As it is a universal law that the death rate increases with the massing of people, so we can readily see how necessary a perfect system of sewerage is in all cities over fifteen or twenty thousand. This question is too far-reaching to be discussed at present by me, but one question is pretty well settled, that the material used in the construction of sewers shall be the best. In the matter of plumbing also we cannot exercise too much care. None but skilled mechanics should be permitted to do this work, as the very gravest consequences often arise from imperfect connections in this work, but if honestly and scientifically done, but little danger from sewer gas may be apprehended. Yet all the blame should not be attached to workmen, as there are plenty of men with souls so small they do not take human life into consideration, so will let their jobs to the lowest bidder, not caring how poorly the plumbing is done, if his tenant will return him a large interest on his investment. To such a man a licensed plumber could say,

"this work must be done, if at all, according to the rules laid down by the board of health."

In every city where sewerage is established the city council should not only exact from a plumber a license showing he understands his business, but it should appoint a competent inspector of plumbing, who will see that all work is done according to the rules laid down by the board of health. All working in harmony would soon cause our mortuary reports to grow beautifully less. Not to stop here, our state board, or members of it, should visit the different cities, hold conventions and distribute health-literature and thus awaken public interest. Our local boards would gladly co-operate with them and arrange for a series of these conventions for the object of educating the masses on this important subject.

"In what way does this interest the state?" is some times asked. I will give you the answer of Prof. Arnold Clark, of Michigan: "In the discussion of this question we might plant ourselves on the Declaration of Independence and assert that all men have inalienable rights to life and happiness, and that to guarantee those rights governments are instituted among men." That a human life is worth something seems hardly necessary to argue. Every death tends to bankrupt a nation. More than that, for every one that dies a dozen are sick, and sickness in a family means a financial panic. Do you doubt it? Reflect the amount you pay a physician, a nurse and for medicine, to this add the loss of wages during that time. It has been calculated that every case of scarlet fever costs from twenty-five to fifty dollars. It has been stated that 25 per cent of the deaths in this state are due to preventable diseases. Then if human life is really worth anything, it behooves us to put forth every effort to save it. We are not too old to remember the day when an able-bodied negro was valued at from \$800 to \$1,000. Will this help us to form some estimate of the value in dollars and cents of human life, if that one is a wage earner, in even the humblest vocation of life. Possibly some misanthropic soul may think that to prolong life, or even grasp it out of the very clutches of death, is a very doubtful kindness. To these we will say: "Come with me to the bedside of those lives hanging in the balance and watch with what intense eagerness the friends of the sufferer hang on the very expression of the physician's face."

The money loss of preventable diseases is beyond our imagination. We have about three thousand registered physicians in this state. They receive \$1,000 apiece each year, at a low estimate, for their services. That means three millions we pay each year to get cured after we are sick. Fees and checks cannot make the balance even when the weights are fairly adjusted. "Public health is public wealth." With this maxim as our text I will ask how much do you pay to prevent disease and consequent death? Our state, I believe, requires every city to have a board of health, and

where none exists the city council constitute that body except under special charter. In the country the township trustees are the responsible parties. With our State Board of Health to give us an abundance of advice, but no actual power to enforce our rules, the duties of local health officers are extremely onerous, though at first their duties seem very plain. The law requires that this officer shall placard those houses where contagious diseases exist. This first step of the officer is not so easy a matter as one might think. The isolation it involves is looked upon in the light of an outrage on their personal rights, and in round terms they often denounce this "minion of the law," blindly looking on him as an enemy, so upon his devoted head the vials of their wrath are poured out. Isolation is inconvenient, disinfection is a great deal of trouble, so they resent this intrusion, forgetting that others may by this means be spared sickness and even death. Indeed, the officer who fulfills his duties without fear or partiality, requires a good deal of tact and a good knowledge of human nature. Where there is no inspector of public health he should understand something, at least, of plumbing, sewerage, adulterations, be competent to test the milk used in these infected homes, and also see that the water supply is not contaminated, as is often the case where wells or cisterns are used, and be wise enough to devise ways and means when unusual emergencies arise. One would naturally think that a man of such parts could command a good salary, but such is seldom the case.

One word on the all-important subject of cleanliness. Webster says it is "freedom from dirt, filth or any foul extraneous matter." This not only includes an intimate acquaintance with soap and water, nor does it alone apply to purity of personal habits, but it means a clean house, clothing, dish-cloth, cellar, yard, alley and general surroundings, as one cannot have pure air in the house if the vicinity is reeking with poisonous odors from decaying matter, stagnant water or putrefication in any form.

These are plain rules to observe and within the power of all who value health and life. Let no man talk about the mysterious providence that removed a useful citizen from our midst by a preventable disease, unless his home and its surroundings were immaculately clean and he had not ignorantly nor recklessly exposed himself to an infectious disease.

I will ask your indulgence while in closing I call your attention to one or two important subjects. As it has been said the "rising generation is the hope of the nation," we can ill afford to ignore them in this matter of public hygiene. The radical branch of the temperance cause see this, and has wisely legislated into the schools instruction in the evils of alcoholic and nicotine poisons. So far so good, but we cannot afford to stop short of a thorough knowledge of all the laws of hygiene. If I should be asked to name the first lesson to teach a child on entering the school-room, even before the embryo man learned to lisp his alphabet, it should be the lesson

that bad ventilation is nearly as dangerous as a dose of poison, that he needs to breathe deeply pure air, that cleanliness is next to godliness, that a clean skin is only second to a clean heart, and that violent exercise in playing or running may bring on a dangerous chill, consequent illness, or even death.

In Ontario, Canada, all teachers are compelled to pass a strict examination in school hygiene before they are qualified to enter on their professional duties. A certain knowledge of the physiology of the brain would assist a teacher in avoiding erroneous methods of education, cramming and routine systems, and teach him the injurious effects of stimulating the brain of the bright or ambitious scholar. Let us at least show as much interest in the welfare of the youth of the land as we do in the well-being of dumb brutes, and see to it that our legislature is as generous in appropriations for public hygiene as in the investigation of the diseases of domestic animals.

The day has come when we realize there is something else for us to do beside passively shedding tears of anguish over our dead, or wearing for them the habiliments of woe, while shutting our eyes to the potent influences that might have protected them from contagion and death. Because at present there seems to have arisen doubts as regard the efficacy of Prof. Koch's wonderful cure, it is no cause for discouragement, for one has truly said, "We stand now at the very dawn of the grandest epoch yet seen in the progress of medicine." A distinguished English physician says, "The science of disease-prevention is destined to alter the whole field of medical practice." It is also said "science with the microscope and crucible is following the germs of disease and the agencies of death." So the future is big with hope for the coming generation.

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## WATER SUPPLIES FOR CITIES AND TOWNS.\*

BY PROF. FLOYD DAVIS, PH. D.,

Chemist of the Iowa State Board of Health.

All natural waters contain mineral salts, some of which may be deleterious to health, but the most injurious foreign substances found in ordinary drinking water are decaying organic matter, and sometimes infectious micro-organisms.

All water that is used for domestic purposes has at some recent or remote period been atmospheric vapor, and as it fell in rains carried with it the impurities from the air. These impurities are gases that arise from combustion, fermentation and decay, and particles of dust and decomposing

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*This paper is condensed from a series of articles on water written by the author for the Engineering Magazine.*

organic matter. Bacteria are also removed from the air in great numbers, nearly all of which are in the stage of spores, instead of adults. The spores of fungi and other microscopic plants and the pollen of flowers and grasses are also found in rain water. So numerous are these impurities in the air that a litre of water which falls at the beginning of a storm often contains more than 200,000 micro-organisms. Half a pint of water frequently condenses out of three or four thousand cubic feet of air, and in its condensation removes nearly all of the atmospheric impurities, concentrating them in the water. So in drinking a glass of rain water, that falls at the beginning of a storm, we swallow as much filth as we breathe from the air in more than a week.

If rain water is stored in cisterns without purification, these substances soon render it so foul that it cannot be used for drinking. But when rain is collected near the end of a storm, and is properly filtered and aerated, it is one of our most wholesome natural water supplies. As rain falls upon the earth it washes away the accumulations of debris from the surface of the ground, and as it passes into the soil, extracts from it a large amount of impurities, like the products of decaying vegetation and the filth and excrement of animals. These substances are carried lower into the circulating currents, and it is not infrequent that the drainage from cesspools and privies also finds a direct entrance into surface wells.

In rural districts, and in small towns, surface-wells are most frequently used as a source of drinking-water. These wells depend for their main supply of water upon the area immediately surrounding them. Their drainage section is similar to the contents of an inverted cone, the bottom of which is the surface of the ground and the apex the bottom of the well. In porous soil the drainage area is large and the water is consequently often very impure. In compact soil the course of the ground water may be influenced by frequent pumping for several hundred feet around the well, while in loose, gravelly soil the area of inflow has been shown to have a radius of several thousand feet. By extracting enough water from such soil, currents circulate toward the center of inflow, and wash the accumulated impurities into the well. In our northern latitudes surface-wells are generally situated in drift gravel, which offers but little obstruction to the passage of filth. We have sometimes seen such wells filled with water of a most disgusting nature; they were little less than receptacles for diluted excrementitious matter. Surface-wells are frequently too close to dwellings, stables, cesspools, privies, and other filth accumulations. These agencies of contamination should never be within the drainage area of a well.

The abundance of filth in cities renders the soil unfit for the filtration and storage of drinking water, and surface wells in such places generally furnish a most polluted and dangerous supply. The practice of sinking wells and privy-vaults side by side on the same lot, in our smaller towns, and even in

some cities, is not uncommon. They are sometimes within a rod of each other, or even closer. In one case, where I examined water that produced typhoid fever, the well was within ten feet of the privy, and yet the inmates of the house had not suspected any contamination of the water. Into the shallow privy or cesspool are generally thrown all the filthy liquids from the house, while from a deeper pit, called the well, sunk below the water-line, is drawn all the water that is used for drinking and domestic purposes. In such cases the contents of the privy and cesspool gradually soak away and mingle with the ground-water that flows to the well, and it is not strange that such wells rarely become dry. As water is pumped from these wells it is immediately replenished from the surrounding disgusting ground-water. We have had occasion to examine surface-well water so polluted that under the microscope, hair, epithelial cells and an abundance of excreta were observed, and yet people with pallid faces and weak constitutions were using it as if it were of crystalline purity. Our attention is frequently called to this class of wells on account of their waters being such important factors in promoting disease. Excrementitious liquids at first are disgusting to the senses of taste and smell, but unfortunately they acquire palatability after soaking through a few feet of soil, so they are often used year after year, without suspicion of their nature, until an outbreak of fever attracts public attention.

Cemeteries in some localities are also dangerous agencies for polluting water. It is well known that soil which contains decaying animal matter may contaminate ground-water for a great distance, in the direction of the flowing currents. Under no circumstances, then, should a cemetery be located among the dwellings of the living, nor should the drainage from it be permitted to enter a stream of water that is used for domestic purposes. The location of a cemetery should always receive careful consideration from sanitary authority, and it should not be chosen merely because it is a gift or cheap. The topography of the adjacent country and the nature of the soil should be carefully examined with reference to drainage and water supply, that the health of the living may not be sacrificed to furnish a resting place for the dead.

Running water, on account of its agitation and exposure to air and sunlight, loses much of the organic matter or pabulum that accompanies zymotic infection; but it is doubtful whether these agencies of purification have any marked effect in removing micro-organisms. Polluted natural soil has also but little effect in removing organic matter from water, on account of the insufficiency of active oxygen in it. The investigations instituted by the National Board of Health, and by other sanitary organizations, also show that average soil has but little, if any, power to remove bacteria from water. So the contagion that may enter ground-water from cesspools and privies

often passes uninterrupted to water supplies, there to gain admission into the systems of unsuspecting victims.

Many contagious and infectious zymotic diseases are now known to be produced by water polluted with such decomposing animal matter as that above described, and it is highly probable that certain diseases are seldom produced in any other way. But the public are generally slow to appreciate the relation that exists between some of our most malignant diseases and the filthy surroundings, habits, food or water of the people subjected to them. Cholera and typhoid fever are typical filth diseases that are communicated through air, food and water, and their origin is generally the result of ignorance, carelessness or superstition.

The object which should be sought in thorough purification of city water supplies is softening and clarification of the water for manufacturing and boiler use, and removal of such organic and infectious matter as may produce or even promote disease. The substances to be removed may be in suspension, such as finely divided clay, silicious and colearious matter; soluble salts of lime and magnesia that harden water, and decaying organic matter and micro-organisms. The latter are the most important substances to be removed from drinking-water, since many zymotic diseases are produced by infectious germs that sometimes gain admission to it through sewage contamination.

We will now present some of the ways by which nature removes most of these substances from water, but a few of the chemical principles involved in artificial purification of water for city supplies are also briefly discussed.

The natural method for purifying ground water, and which we imitate in our artificial systems, is filtration. In this, nature removes infectious organic matter by biological agencies, but there are certain mechanical and chemical changes which are effected by filtration alone. It may be laid down as a general rule, that nearly all natural waters may be improved by filtration, while none can be injured by the process; but whenever an artificial filter is used it should be so constructed as to be easily and frequently cleansed and aerated, that none of the impurities removed at one time may be washed into the water at another. It is estimated that the surface-areas of the particles of a cubic foot of fine sand amount to many thousand square feet, and the larger the surface area the more perfect the filtration. Mechanical filtration, whether natural or artificial, assists in purification in at least three distinct ways. First, by straining, in which the efficiency of the operation depends on the fineness and nature of the sand, and the rapidity in flow of the water. White, angular, quartz-sand is generally used for artificial filter-beds on account of the ease with which it can be cleansed. Owing to the rapidity in flow of water, no pressure filter can strain water as thoroughly as it is done in the gravity systems. Straining is the principal way by which the solid, coagulated and entrapped impurities are removed in any filter-

bed used for city supplies. Second, by sedimentation and adhesion within the pores of the filter, and the efficiency here depends upon the size of the sand-particles and the rate of filtration. Third, by oxidation and other chemical action. The accumulation on the extensive surface-areas of the sand-particles furnishes great opportunity for the ground air to destroy the organic accumulations, and it is evident that this is done as the oxygenated water flows slowly through the film-coated sand particles. On the other hand charcoal condenses oxygen in its pores, and destroys the organic matter of water as it passes through it, and absorbs foul gases from the water, but it soon gives up its oxygen and loses its power of condensation unless frequently cleansed and refilled. According to Salmon and Matthews, coke owes its power of removing organic matter from water to the iron contained in it. Any filtering medium, whether natural or artificial, should be thoroughly supplied with oxygen, which element is always present in all perfect filter-beds. Without it there can be only a temporary oxidizing action in the water.

The surface-soil of the earth is the great natural purifier of ground water. Here nature provides for the change of noxious into harmless compounds as the water passes through the first few feet of soil. When sterilized soil or sand is used as a filtering medium, the water that passes through for the first few days may be thoroughly clarified, but it will be only slightly improved by removal of organic matter. At first, the water retains all its micro-organisms, or their number is increased as it passes through the filter. After a few days all this changes. The sand spaces near the surface become filled with a light bacterial slime, that not only forms a nidus for the germs to accumulate and breed in, but it soon acts as an almost perfect filter for entrapping other bacteria that are on their way through the filter, so water that passes through, will, under favorable conditions, be almost sterilized. Some bacteria that are caught in the slime in large numbers soon die; but the great majority of the water-bacteria produce this slime, and in it find a paradise for their work. They live in these surroundings with the decaying organic food flowing by them that they require to thrive on. They have an upward movement in the soil and tend to accumulate near the surface or in the four or five feet of surface-soil. Here they slowly tear asunder the organic matter that flows downward, appropriating a portion to their own economy, while the remainder is set free for other classes to work over into new and harmless compounds. One class of bacteria transforms the nitrogen into ammonia, another class oxidizes the ammonia into nitrous and nitric acids, while another class converts some of the carbon into carbonic acid; and much of the organic matter is so modified as it passes into the soil, that the roots of living plants absorb and assimilate it. These changes of nitrification are among the most important chemical changes effected in nature. The removal of harmful impurities from water



in the soil, therefore, is primarily more of a biological than a chemical question, and in considering the natural purification of water we must ascribe to micro-organisms a role of first importance, although some of them may be infectious. The changes, which they effect in the purification of ground-water, are more perfect than can be effected in artificial systems of purification, and hence we must expect to find our purest water in the soil where nature has oxidized and removed the impurities from it. For this reason we believe there is generally no source of water of sufficient extent so pure and desirable as properly selected ground-water, and no system for city supplies deserving our consideration so much as the ground-water system where the water can be secured out of range of contaminating influences. The slow and intermittent nature of filtration through soil is an important element in the efficiency of the work. In seasons between rains the soil becomes thoroughly stored with ground-air and carbonic acids. These are sufficient to act as natural agents of æration, after the bacteria have done their work near the surface of the ground. In imitation of this, artificial æration is frequently resorted to in water-works to complete the destruction of some of the organic matter that cannot be coagulated and removed on filter-beds. So we have learned to follow nature in various ways in the great work of purifying water, and the most perfect artificial systems are those that imitate her best in this work.

In the artificial purification of water, various methods have been adopted for the removal of soluble organic matter and germs. Ferric chloride, potassium permanganate, and some other oxidizing agents have been used to destroy this organic matter, but the substances now most successfully used are coagulates for the organic matter. These destroy and remove most of the germs as they are separated from the water by proper filtration, and the water is then improved by æration. Alum has been in use for centuries, and it and aluminum sulphate are the commonest agents now used. It is very probable that salts of alumina contained in the soil have a marked influence in coagulating organic matter, and therefore in purifying water. With waters that contain considerable salts of lime, these reagents act in a beautiful way. The lime is precipitated with the sulphuric acid of the alum or alumina sulphate as gypsum, while the alumina is converted into a flocculent hydrate that coagulates and removes with it both the soluble organic matter and the bacteria. From laboratory experiments we have found it an easy matter to remove with alum more than 60 % of the organic matter, and at least 99 % of the bacteria from water. The amount of these coagulating substances required is generally very small, depending somewhat on the lime in solution, and ranges generally from one-tenth to two or three grains per gallon of water. When the amount is properly regulated the alumina is so perfectly removed from the water that the most delicate chemical tests fail to reveal

even a trace of it. Under proper management alum and aluminum sulphate can never be injurious in water, and they are the agents generally used by such leading filter companies as the American, National, Hyatt, Jewell and some others.

The removal of organic matter and germs by agitation with metallic iron, as practiced in Anderson's revolving purifiers, is also a very successful method of purification. The iron is here converted into a bicarbonate, which when exposed to the air oxidizes and precipitates as hydrated ferric oxide, carrying with it both the organic matter and the bacteria, which are finally removed by filtration. It should not be understood, however, that any artificial method for purifying city water supplies has ever completely removed the organic matter or all the germs. This can only be done by the slow process of distillation and sanitary filtration; and no contaminated water should be used for drinking without first being boiled or passed through a sanitary filter to remove the infectious germs. But the processes for city supplies aim at coagulation as a preliminary means of removing infectious matter from water. The balance of the work depends upon filtration, which in any artificial system is little more than a mechanical process. Its efficiency depends largely on the filtering medium, rapidity of filtration, and the care exercised in keeping the filters thoroughly clean.

Pure water-supply is one of the most important problems with which sanitarians now have to deal, and cities and towns that have a real sanitary and progressive public spirit at this age and day generally have water-works, but some cities and many small towns, especially in the east, derive their entire water-supply from cisterns and wells. These private sources of water command our attention, especially on account of the possible excellence of the former, and the disease that is often produced by the latter through sewage contamination. Nearly all wells in the northern Mississippi valley are situated in drift gravel, and necessarily receive a portion of their water from surface drainage. Such wells should not generally be used in cities and towns, for it is much easier to guard against impurities in our general water supply than against the ill effects that may arise from many hundred or thousand polluted wells. Even under the most favorable conditions cisterns and wells do not usually furnish the conveniences and comforts of modern civilization, and proper protection against fire. Water supply systems only can do this; and to meet the popular clamor for public water works, supplying an abundance of pure water, is one of the most important sanitary and engineering problems with which municipal authorities have to deal.

Aside from all sentiment and duty the importance of pure water to a city or town may be considered from a pecuniary standpoint. All sanitarians agree that the great majority of typhoid fever cases owe their exis-

tence to polluted water, while some eminent authorities claim that this disease is transmitted only by this agent. A conservative estimate of the value of an average individual to the state is at least \$1,000, so when we consider that about 40,000 persons die annually in the United States from this disease, we must attribute to the typhoid infection of polluted water a loss of more than \$40,000,000 each year to the nation in the sacrifice of human life. Beside this there are about ten cases of typhoid fever for every death produced by it, and the 400,000 cases of this disease each year in our country costs the people many million dollars more. Add to this the expense attached to other diseases that are transmitted by impure water, and the estimate will be swelled to enormous proportions. Every city and town having impure water should consider well these facts, and hasten the day when nearly all of its citizens can be supplied with pure water from public works.

Many small towns are thoroughly awake to the importance of a pure water supply and the urgent demands for water works are shown by the large number of them recently constructed. Over one-half of the water-works in New England have been constructed within the last eight years, while about 30 per cent of them have been built within three years. Nearly all the water works of the smaller western cities and towns have been constructed since 1880. While the earlier works were built only for large cities and supplied only a small proportion of the people with water, it is very gratifying to know that many towns in the west of less than 1,000 inhabitants have water works and a large proportion of our people drink pure water.

The cost of constructing water works should not be a barrier against them even in small towns, for under good management the revenue from water tax will always pay a good rate of interest on the money invested. The recently (completed Jan. 1, 1891) constructed works for the town of Humboldt, Iowa, will illustrate the necessary expense for one of its kind. Humboldt has a population of about 1,000 and is located on the rolling prairie, on the east bank of the Des Moines river. The amount of water used by the town is about 16,000 gallons daily, and the railroad company will eventually be furnished some 25,000 gallons more. The water is taken from two springs on the bank of the river, having a combined flow of 150,000 gallons per minute, and is conveyed to a well sunk two feet below the river, so as to use river water when necessary, in case of fire. To furnish the required pressure the water is pumped from this well into a reservoir of 112,000 gallons capacity, situated on the bluff west of the town, and from this the water is distributed through the mains, which are now 165 rods long. The cost of this plant, including boiler-house, engine, pumps, mains, valves, hydrants, trenching and laying pipe, reservoir, conduits, well and spring houses, engineering and contingencies, was about \$8,000. The

works would be a good investment for Humboldt had it cost several thousand more. Water-works using spring and ground water that requires no filtering are the cheapest and generally best systems that can be used. When the required pressure can be secured directly from the springs, or from reservoirs below them, the necessary expense is comparatively small.

Having now briefly considered the impurities of water and the necessity for public water works, let us notice in conclusion the real nature of zymotic infection and the precautions that should be observed to prevent filth-diseases.

It is now almost universally admitted that bacteria or microbes are the indirect agents of all zymotic diseases. Such diseases as cholera, typhoid fever, diphtheria, scarlet fever, erysipelas, and tubercular consumption belong to this class. These germs belong to the domain of botany, and are the simplest and minutest organisms of which we have any knowledge. They inhabit nearly all kinds of matter; they are always found in the air we breathe, the food we eat, and even the purest natural waters are never free from them. The purest spring and deep well waters generally contain from a few to several hundred per c. c. River and surface well-waters generally contain from several hundred to many thousands per c. c.; while some of the most polluted waters contain more bacteria in a wine-glassfull than there are people on the face of the earth. Bacteria are also the most prolific organisms of which we have any knowledge, for a single bacterium may become the causative parent of more than 16,500,000 descendants in a day. They are also possessed of great vitality, for they can be carried great distances in water without losing the power of producing disease. It is difficult to annihilate some of the germs, for they can be frozen or even boiled without being destroyed. They may be kept dried for years, and yet when placed in a suitable medium will produce fermentation and decay, or if pathogenic, disease.

We are fortunate that only a few bacteria are disease-producing. The great majority are harmless and beneficent agents in nature. They are the principal agents of oxidation of organic matter, and it is to them that we owe the phenomena of fermentation and decay. They are the common scavengers of the earth. Were it not for their constant and beneficent work the world would soon be choked up with decaying animal and vegetable matter, and all the higher orders of life would necessarily perish. There are no living beings so widely distributed and none more beneficent in their labors than the harmless bacteria.

But the infectious bacteria have the power of elaborating cadaveric alkaloids, known as ptomaines, and the question whether zymotic diseases are produced by bacteria themselves or by these ptomaines, cannot, in our present imperfect state of knowledge, be answered with certainty. In some cases, the disease seems to come from the organic poison. Thus tyrotoxi-

con, which is the alkaloid produced by bacteria in the fermentation of milk, produces a complexus of symptoms in the human system resembling those of cholera infantum ; so it is very probable that tyrotoxin is the chemical irritant producing this disease. What is true of cholera infantum is perhaps also true of typhoid fever, and other filth diseases, but not at the same stage of life.

All bacteria feast upon organic matter, and develop in great numbers in fermenting solutions of it. Their number is generally approximately proportioned to the amount of impurity, and therefore may represent relative danger of potable waters. A water that contains a large number of them should never be used for drinking without first being boiled. By boiling polluted water for half an hour all the infectious (but not all the harmless) germs in it will be destroyed. If it is then filtered to remove the coagulated substances and aerated to render it palatable, such water can be used with perfect safety for drinking. Since the infectious bacteria are the agents of all filth diseases, it should be the aim in all sanitary water-analysis to determine their actual existence in water, or what answers the same purpose, to determine the conditions favorable for their development. Without discussing the relative importance of chemical, microscopical and bacteriological examinations, it is only necessary here to say that whenever a chemical analysis reveals the presence of sewage in a water its use should be discontinued without an expensive bacteriological examination.

In pleading for better and purer drinking water we speak with a thorough conviction gained from the analysis and study of more than one thousand water supplies. People may continue to drink impure water and still live, yet its continued use affects the human system and slowly degenerates our race. We believe that it can be shown that water even slightly impure is productive of a host of ailments for which the average sufferer finds no apparent cause, for the results are then generally so slow and gradual as to evade ordinary observation, and the evil effects are borne with the indifference of custom. Public attention is now being directed not merely to cases where striking and violent effects are produced, but to all public and to many private water supplies; and investigations can now be made as cheaply by competent and responsible men, that the use of impure drinking water is often a fault rather than a misfortune, and continues more from carelessness than from necessity.

Still it is often difficult to persuade those accustomed to polluted water to abandon it, since such water may have an agreeable taste and may have been used for years with seeming impunity. Many who are unacquainted with the etiology of disease cannot be convinced by the results of scientific investigation of the pollution of water and its terrible effects. They require the "test of experience," and to some there is no test convincing of the pollution of water, except the actual production of sickness and death.

But the scientific investigator recognizes the fact that diseases are now seldom produced by the agency of drinking water that might not have been avoided by timely attention. These investigations also force upon us the fact that as communities are supplied with pure water, they not only enjoy a decrease in the disease and death rate, but they also often enjoy a most surprisingly rapid increase in thrift, morality and degree of civilization.

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### THE EFFECTS OF OUR PRESENT PUBLIC SCHOOL SYSTEM ON THE RISING GENERATION.\*

WOODS HUTCHINSON, A. M., M. D., *Des Moines.*

*Mr. President, Ladies and Gentlemen,*—I had agreed to take part in this program simply with the understanding that I was to open a discussion upon this interesting and important subject. But it now appears that there is to be no discussion. I fear my remarks will be something like a gate that doesn't lead anywhere; they will be very brief and somewhat scattering. I think that I hardly need apologize to such an audience for taking the position indicated by the subject. The word "doctor" means teacher, and I think we are about the best teachers that the community has. If our teaching was to be taken away from them I don't know where they would go to replace it. I think it is the privilege of a doctor to have something to say on even more subjects than he now has. The time is coming when we shall not submit to being ruled solely by "limbs of the law," who now compose the bulk of our legislatures, and are afterwards asked to interpret the legislation they have themselves made. I think the time is coming when medical men, along with other men, will have their due weight in legislative halls and political assemblies—wherever their influence can be exerted for the good of the community. The importance of the subject I hardly need refer to. There is a beautiful story in one of the Buddhist sacred writings, of a Mahatma who was given the power of seeing what was the true spiritual character of every one with whom he was brought in contact. It placed a sort of visible halo around the head of every saint or hero. On one occasion, going into a great city, he went up and down through the streets, seeing no one with the peculiar mark of spiritual worth. Finally he came upon an insignificant-looking monk, around whose worn and faded cowl circled a ring of purest light. He looked at him with surprise and inquired of the people, who and what he was, supposing him to be an anchorite of the most renowned sanctity, for there was the spiritual mark in all its lustre. He could find out nothing whatever about him from the surrounding crowd, nor guess anything from his appearance and dress, and finally asked him what he was. And the stranger made answer, "I am a

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teacher of little children." I think there is nothing of nobler or higher importance than the taking care of the rising generation to see that they get a good start in the world, and no surer way of making the world better for our having lived in it, than by devotion to this. The system of our public schools is open, like every other institution, even American ones, to certain objections, and I thought the briefest way to get this subject before you would be to bring up these in rapid succession.

The first objection to it is, that it is a *system*. Any sort of a system to which individuals have to be submitted is apt to cause friction somewhere. Any kind of regimental rules which have to be applied to these extraordinarily plastic, growing creatures, our little human flowers and plants, are almost sure to chafe at some point. I think we are apt to get, and have got, into our glorious education a great deal too much of the style of the drill-master. There is too much system and too little individuality about it. The second objection is, that it is in a sense *unnatural*. The most natural thing for a child to do is to wriggle and squirm and to bring those limbs of his into active motion. He wants to be out struggling and fighting and screaming at the top of his voice, and developing all the powers of his body. Our system comes in and says, "No," for six or eight hours a day you must sit perfectly perpendicular, upon hard benches and not let your spinal column depart from a vertical line. For that length of time you must be shut out of the air and sunlight which God intended for your development—barred from that exercise which is the principal thing in the growth of both body and brain. That, of course, is a criticism that has to be passed upon almost any system of education. We have to give up something, but it seems to me we give up more than is necessary in this line.

The next objection is that the system as at present carried out is a system of too much pouring in and too little drawing out. We are apt to think that a child ought to know certain things at a certain time and in a certain grade. I hate that term "grade." I do not think it is a term which ought to be applied to children, or to any other living, feeling beings, except, perhaps, cattle. We have got too much in the habit of allowing him to go through the mechanical routine of parrot-like recitations instead of training him to use the powers he already has. We want to cram instead of educate.

The other objection, and to my mind the most forcible, is that we have got the cart before the horse. We are working under the old idea that the brain is the organ of the mind. The brain is the organ of the muscle and the mind is the organ of the brain. The muscle is first, the brain second, and thought or language third. That complicated system of voluntary movements we call speech is the very ground-work and mould of thought, and speech has muscle as its ground-work. We are trying to develop the child from the roof downward—trying to make a pyramid stand upon its apex. In some of these things we are just about as philosophical as the

little girl in Holland's novel who was desirous of having long and beautiful hair, and so in eating her bread and milk was always careful to press it up against the roof of her mouth in order to get it as near the scalp as possible and bring about the desired result. Brain-training, as such, utterly divorced from muscle-training, is about as useful as that is. It is beginning wrong-end-first entirely. As to the results, any one whom you will consult will tell you at once that unfortunately the best class of children, or the children of the better class of the community, are the ones to whom the greatest damage is done and who are becoming more and more what we call neurasthenic; that is, the nerves are weak and "unstrung." Not because there is anything peculiar about our modern nerves, of which we are so proud, but because the nerves are the most delicate part of the whole system and the first to complain when the latter suffers from sunshine-hunger or exercise-hunger. Neuralgia and "nervousness" are becoming very common among such "starved" children. The increase of myopia ("short sight") is another striking case in point. In the lower grades we find it present in scarcely two per cent of the scholars, and in the higher grades as high as twenty per cent, and in some parts of Germany as high as forty per cent—showing that the school work is to blame for this condition of affairs.

I have also known children whose work is made extremely attractive to them and who are urged in every possible way to do better than some other child and to keep up with their classes. The ones that are the most sensitive and conscientious—and I am almost inclined to think that conscientiousness in children is apt to be associated with morbidness and feebleness of some description—is a bad symptom, in fact—are so fond of going to school that they cry when have to be kept at home. Those children are distinctly abnormal. I don't think that the great mass of children, that is, the mediocre ones, are very much damaged in this way, but the very best are the ones that are the most hurt. At this rate the race must soon deteriorate, as only the stupid ones escape injury. A curious illustration of the effect of this straight-jacket system upon the children of the time is in the peculiar way in which their playing is carried on. If you watch them in their playground you will be struck with the absence of real, vigorous, determined, rollicking play. It's half-hearted and feeble. The children of to-day are harder to amuse than children have ever been before. There is an alarming development of toy shops. It takes more to interest them simply because they are lacking in physical vigor. They cannot amuse themselves as formerly by running, jumping and scuffling. I am almost afraid play is going to become one of the lost arts in the rising generation if matters do not take a turn before long.

As to the physical development, it is only necessary to go to one of our school houses and take a glance, as the children file out, at their upper anat-



omy and then at their lower to get an idea how much is lacking in that respect. When children are getting to have craniums like young pumpkins and legs like broomsticks, there is something wrong somewhere. I have been watching and trying for some time past to find a decent pair of legs among the boys of the Des Moines schools, and I assure you it is a rare thing.

There is no proper amount of under-pinning for that magnificent intellectual development, which we are so proud to boast of, as one of the most striking characteristics of this nineteenth century. The causes of these undesirable results we need not go far to seek. One is the enormous amount of regimental drill and elaborateness of system which we have introduced into the schools. I do not for a moment claim or think of intimating that this is the fault of the teachers. Far from it. I think the teachers are keenly aware of the defect and as anxious to avoid it as we are, but they are handicapped by circumstances. It is part of the abominable tendency of the age to do everything by wholesale. We think men can be legislated into being decent when they don't want to be. We are slurring individual effort and throwing all our energy into an endeavor to do everything by "committees" and "organization." I think we are making a great mistake in very many particulars by it. If some "system" could be invented of hatching the coming generation in incubators and raising them in squads at public expense, we would adopt it eagerly. Our Sunday-school system is an example. Instead of the quiet, gentle teaching at mother's knee, to which we look back, and to which all generations have looked back with grateful reverence, we substitute the noisy "infant class" and "intermediate class" taught by gaudy cards, illustrated leaves, inane black-board sketches and cheap clap-trap music. We would like to "organize" the millennium into existence. The public school is part and parcel of the same thing. We are diminishing and discouraging individual effort, expecting officials, government, teachers and Sunday-school teachers to try and make up for our deficiencies. The fault seems to lie really with the fathers and mothers, and not with the system itself. Of course, if the system would change a little in order to allow home influences to have greater chance to work it would be better, but even under present circumstances a great deal more could be done and ought to be done in this direction.

It is hardly necessary to say why it is that the modern child is being neglected. Some mothers are too anxious to be known in social circles and to keep to the front in that. This is desirable provided it doesn't interfere with other important duties. Others are equally anxious to be known as model housekeepers. This is often as bad as some of the milder vices in the male sex, and capable of producing as much harm and injury to the rising generation as any other one thing. The consuming desire to be absolutely "spotless" in everything, without regard to the comfort of others,

merely as a matter of conscience, may become as objectionable as any form of dissipation. Another thing which is responsible for much, is the wonderful appetite for "culture" which has seized upon all classes and is especially raging to-day among the ladies. It is the Juggernaut of the present day, under the wheels of which the poor little rising generation is in sad danger of being crushed. The woman who hankers after culture for its own sake is just as bad as the man who hankers after money for its own sake. Beware of the man who spells "money" and the woman who spells "mind" with a capital "M." The desire to have either one or the other just for the sake of knowing you have it and displaying it before other people is contemptible and sure to lead to trouble. As to the fathers, it is hardly necessary to say much about the effects of their influence upon the children of the present time. It's hard to discuss a negative quantity. Our American men of to-day are getting more and more to be mere machines for making money; business is getting to be of much greater importance than the family relations. Home government has been turned over almost entirely to the mother, leaving her to do double duty, and it's no wonder that our family discipline is a reproach throughout the civilized world. The manners of our children and the purity of our municipal governments are alike notorious, and both due to the laziness, indifference, or even cowardice of us men. We are far worse in need of "home rule" ourselves, than is any foreign country with which we are in the habit of sympathizing. I was told a little story the other day of an American business man who was following the usual "hustler's" course, rushing off early to be at his office, to keep up with the procession, coming home late at night, and seeing very little of his family. One Sunday morning he was sitting out on the lawn reading his paper while his wife was occupied indoors. Suddenly she was interrupted by the appearance of one of the children crying and calling for "Mother." She, of course, inquired: "What's the matter, Johnny?" "That man out there whipped me." "What man?" "That man what stays here nights." I am afraid the American business man is getting to be less acquainted with his family every day.

Now just a word as to the remedies: These are emphatically personal and individual. It is not a case for "Leagues" or "Unions." "The Kingdom of God cometh not by observation" nor by legislation either. Like charity, this reform literally "begins at home," and no radical cure is to be hoped from any modification of public institutions until this private question is properly attended to.

And yet several things might be done to relieve the symptoms somewhat, and with all the diffidence born of a lack of practical experience in school-teaching, I would venture to suggest a few which seem to be commendable upon hygienic and developmental grounds.

One is, to shorten the hours. Three hours "confinement with hard labor" per diem is as much as ought to be imposed upon any healthy, growing child. Let him spend the other half of the day in Nature's school—the open air. Considering Her record and qualifications, I think She might be trusted with at least half his education. Indeed, repeated experiments, by Dr. Chadwick and others, have shown that he'll even make more rapid progress in our superior methods, if we'll only give Her a chance to help us. "Half-time" children do more work and do it easier and better than "whole-timers."

If this be too radical, let the afternoon session be continued, but cut down to an hour or an hour and a half, and occupied solely by singing, drawing, dancing and calisthenics.

I am glad to say that there is already a dawn of progress in this latter direction. Instructors are beginning to officially recognize the fact that children have bodies as well as minds, and physical culture is becoming a regular part of the scheme of education. Graceful movements of the "parlor-gymnastics" order are being introduced as class-exercises, and in Boston, at least, of our large cities, there is a competent "Physical Superintendent of Schools" with a liberal salary. All this is worthy of the highest praise, and together with the healthy growth of the athletic spirit of late years, is a most encouraging sign, but it has come none too soon.

The principal duty of the school system toward physical development is a negative one—to keep out of its way. To see that it doesn't interfere with nature's great training school,—far ahead of any gymnasium yet invented—out-door sports.

Could we not, also, with advantage, take a leaf out of Nature's book in our actual teaching methods? Teach more by objects instead of names, and facts instead of symbols. Stimulate curiosity and interest the senses to develop powers of observation and reasoning instead of pouring in "facts and figgers" like lard into a bladder, thereby distending rather than nourishing. Take the children at least once a week, out to some river, wood, hill, sea-coast, quarry or mine in the neighborhood, try to answer a few of the questions that will come pouring in upon us, and use all sorts of "living texts" for sermons upon geography, botany, geology, astronomy, zoölogy, etc., in language adapted to their comprehension. Next day ask them to write down all they can remember of what they have seen and heard. Even the most "practical" mind must admit that they would "learn something" every trip, and what is vastly more important, would get a training in observation, memory, reasoning and power of expressing themselves, and develop a love of nature which would be simply invaluable.

It is true that our teachers would have to be much better educated in order to carry out such a scheme, but that would be one of its advantages. We ought to elevate our standard of fitness 30 per cent—our salaries ditto,

and make the tenure of office entirely independent of family or political influence, so that the very flower of our youth could afford to take it up as their life-work, instead of regarding it as too often now, as a mere mental "pot-boiler," a "something-to-do" to fill up the time between graduation and marriage. With the exception of our own profession, there is no body of men or women who do more intelligent, noble, self-forgetful work, or get less for it, than the bulk of our teachers, yet there is also far too much amateur work and cheap "unskilled labor" permitted in our school-rooms, and it is little wonder that some of the methods of "education" practiced are about as philosophical as trying to make a plant bloom by warming the flower buds, or picking them open with a pin. At bottom, however, this is a matter of individual responsibility and effort, and so soon as we quit blaming the public school system and legislation and try to make the parents go to work and take the matter into their own hands, just so soon will we earn the undying gratitude of the generation and the right to the title of "doctor."

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## SECTION OF HYGIENE AND STATE MEDICINE.

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### CHAIRMAN'S REPORT.

A. W. CANTWELL, M. D., *Davenport*.

"State Medicine" is now defined as the connection of the State with "that branch of science which relates to the prevention, cure or alleviation of the diseases of the human body." It embraces, not only all public sanitary measures, but also the practice of medicine, in so far as it is regulated by the state. This practice aims, not simply at the cure of disease, but rather at the prevention of it, and in this way at the promotion of public health—continually hoping, and not only hoping, but working for reforms; reforms that are good, reforms that are wise, reforms that are practical, reforms that are, in a word, for the good of man's estate, both mental and physical.

One of our greatest sanitarians has well said, "It is easy to be cynical over public health organization and administration, not only in this but in all countries. What is done is so far short of what might be done, the practice corresponds so little with the theory, that there come hours in the life of every sanitarian when he is inclined to think that it is a waste of time to contend with the self-satisfied ignorance, or short-sighted selfishness, which oppose every effort at prevention or restriction of disease." Still our motto must always be "Nil desperandum;" and we must go on, knowing full well that our work is never done, and realizing that it is the day-dream of ignorance to look upon that hour as happy when we shall have nothing more to wish for, nothing more to accomplish.

It has been said and truly said, that in considering the wonderful range

of state medicine, which embraces all the possible relations of our profession to the commonwealth, including medical jurisprudence and medical legislation of every sort, national or international, besides public hygiene, that "sanitary science to the many means only a limited knowledge of sanitary engineering, and this solely as regards sewerage and plumbing work."

Here we may say we should have legislation in our state requiring the licensing of plumbers and the thorough inspection of their work. This is greatly needed. The country is overrun with a class of men who profess much, but who, in reality, know nothing. Four-fifths of them don't know enough to "wipe a joint" properly. In my own city I have seen sewer pipes laid wrong-end-to and without cement. Should not more knowledge than this be expected of, and possessed by the men to whom we entrust the important work of ventilating and draining our homes?

Dr. C. S. Moore, in his address before the American Medical Society at Nashville, Tenn., asks, "What has been the progress of opinion on the subject of hygiene? Can we feel it has received a tithe of the consideration it deserves?"

Is not this subject of hygiene almost continually before us? Can we ignore it in our schools, in our homes, or in our working places? On the contrary we must always consider it, not only in our efforts to cure all disease, but, as well, in our efforts to prevent susceptibility to disease by increasing the vigor and resisting-power of the system by attention to hygiene as well as to the digestion and assimilation of food; by attention to ventilation and by a close study of the temperature and the climatic conditions in every case. This theme involves wide-spread interests, and holds in its grasp the sunshine and the happiness of our homes. Its knowledge has already stayed, not alone the black plague of despair, but has imparted to the poor leper and the consumptive the hope of a new miracle. Says an observant foreigner, "The Americans are a bright and intelligent people, but they care nothing for health. They lavish it, and when it is gone they lavish their money on pills." Is this a true sketch, or do we fail to "see ourselves as others see us?"

It seems evident that no substantial progress can be made toward the prevention or avoidance of disease until we have knowledge of its causation. If we possessed the knowledge of the causes of preventible diseases, our duty would be plain.

As to the cause and prevention of diphtheria, the following are some of the causes brought out by the committee on this subject in their report at the recent meeting of the American Public Health Association in Charleston, S. C. Of the many answers received to the questions propounded to the profession in all parts of the country, 93% indicate that diphtheria is dependent on some specific cause; that light-eyed and light-haired children are more subject to it than those of dark complexion, and that cold, wet weather

is most calculated to spread the disease. Sixty per cent indicate that dogs, cats and fowls are subject to diphtheria, and likely to carry the virus in their fur or feathers, thus communicating this terrible disease to children playing with them. Such cases have been traced, beyond a doubt.

I think that this society, both collectively and individually, should not fail to foster, as far as may be in our power, a proper sentiment in the community in regard to the contagious nature of this disease, and I think especially that it should encourage the earliest possible recognition of the malady, with report to the local board of health in each individual case. In the absence of all facilities for thorough isolation, the quarantine of the place should be made as complete as possible; it being understood that quarantine of premises is not so much to keep adults from going in and out in the course of their ordinary avocations as for the purpose of keeping the sick away from the well, especially from children.

In the report just quoted, which is as yet incomplete and not published, it is estimated that the annual mortality from diphtheria in the United States and Canada is 10,000, and the number of cases 40,000. Climatic, local and contagious causes are enumerated by the committee, as well as the probability of the contagion being communicated by animals.

Another prominent fact brought out is the permanence of the infection in houses and apartments once infected, again showing that we have a strong weapon in isolation, perfect disinfection, etc.

The local board of health of Davenport recently traced an epidemic of this disease, occurring in the Soldiers' Orphans' Home at that city,—which, fortunately, was stamped out in less than sixty days—to three cases coming from homes in different parts of the state where the disease had existed only two weeks previously. The board at once requested the trustees of the home to refuse admission to children coming from places where infection had existed, till after a period of sixty days had elapsed from the time of their exposure. There being some doubt as to our authority in the matter, this being a state institution, we shall expect the aid of the state board in enforcing some such rule.

And here I may remark that like restrictions should be placed upon the admission of inmates to any and all public institutions, unless we may except the hospitals where such cases may be taken to be cared for.

The only excuse for referring so extensively to this subject is the fact that I consider diphtheria the most prevalent and deadly disease in our state, the fact that its existence here is being quoted largely in foreign states to our detriment, and the further fact that, with extended precaution, it can be prevented to a very large extent.

When man rises by means of modern medical instruction to the momentous cognition that he has power over his own destiny and that of his offspring, life for the masses will be truly worth living.

No event of modern time possesses so much vital interest for the whole world of humanity as the announcement of the discovery, by Professor Robert Koch, of a cure for consumption. It is asserted, on a sound statistical basis, that 4,000 of the inhabitants of the earth die of consumption each day. This is a frightful mortality from one disease, and its contemplation justifies the universal interest in Professor Koch's discovery.

This suggests the great necessity existing in our country, for governmental aid in investigations of this kind. While the national government has done much for public health in establishing quarantine stations and in providing in other ways for the protection of the health of her citizens, that work is small when compared with that done by foreign countries, or even with that done for the protection of the health and life of our domestic animals. Many of our states have just reason to be proud of the work that has been done by them for the benefit of the public health. It would reflect credit upon the government of any country in the world. "The greatest good to the greatest number" can be secured by caring for the lives and health of the people. Does not the same necessity exist for the establishment and maintenance of a Department of Health as for a Department of Agriculture? We think so.

But some of the state governments are fully as slack in this respect as the national government. Why, within a week, on the 8th inst., the Board of Regents of the Nebraska State University appropriated \$10,000 for the investigation of the diseases of domestic animals, and appointed Dr. S. F. Billings of Chicago, director of the experiment station. What do we hear of Nebraska's State Board of Health? How does our own State Board fare in this way? Comparisons of this kind are always odious.

The constitution gives congress the right to look after the general welfare of the people, and that work cannot be better done than by providing for the care of their health and lives by investigating the causes of diseases, and laboring to prevent them. Is any other question of greater consequence than this? Does it not devolve upon us, individually and collectively, to use all our influence in favor of the establishment and proper maintenance of a department of public health? I do not say, nor is it to be expected, that any action or any power of government, can directly cause a man to be healthy, but it can work as effectually to promote this as it can to make wheat grow or an ox to become fat.

Another question, which to my mind is an important one, and one which needs further legislation, is the collection and registration of vital statistics. Most of those returned are so incomplete and unreliable as to be of little value. Calculations, deductions and arguments based upon such statistics as are generally published, particularly such as are furnished by the average census enumerator, are simple statistical lies, and unscientific lies at that.

The value of faithful and reliable returns of this kind is clearly shown in

my own city of Davenport. There the board of health has been fighting diphtheria and kindred ills along certain well-defined lines for years. It has insisted that cleanliness, isolation of cases, and quarantine be observed as far as possible. Meantime it has kept a close and faithful record of all cases occurring. Now we have reached the point from which we can look back over the history of years of work, and see, beyond possibility of doubt, that our mortality from zymotic diseases, notably diphtheria, has been steadily and persistently declining, notwithstanding increase of population. We feel that we may safely conclude that we have been directing our assault upon the enemy's pregnable point.

But the study of statistics and their application is a deep one, and we can hardly hope to have reliable work in this direction till we have more attention given to trustworthy statistical knowledge by our colleges as well as by state authorities. In the meantime we must hope that our laws upon this subject may be made stringent, and that prompt and full returns of all vital statistics may be made obligatory, that we may have them reliable, as a ground from which to make at least truthful deductions.

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## EDITORIAL.

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### THE DIGNITY OF THE PROFESSION.

ONE always instinctively suspects the benefactor of his species who distributes relief at twelve dollars a bottle, especially when he maintains a strict monopoly of the remedy by keeping its composition a profound secret, and charges thousands of dollars per State for the privilege of supplying it to suffering humanity—at cost price and a small profit.

In the first place, the method has a sort of selfish look about it, but then of course appearances are often deceitful and we should not judge truly great and good men too hastily. In the second place, it would appear to make invidious distinctions among the sufferers and bid fair to cause many heart-burnings and jealousies, for it sometimes happens that people who have little or no money suffer almost as much as those who have plenty, and would foolishly, but not unnaturally, feel hurt if the latter were promptly relieved, while they were left to grin and bear it as best they could.

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At least that is the way it would strike one of those hopelessly impractical and wrong-headed enthusiasts, known as doctors.



To their narrow and unprogressive minds, warped by a bigoted and antique code, there is something so appealing, so well-nigh sacred about human suffering, that no personal, political or financial consideration ought to be allowed to stand for a moment in the way of its relief. The poor, dear innocents seem to entirely forget the fact that they are living in this glorious nineteenth century, this era of Trusts and "Combines," "freeze-outs" and "sweating-systems" when the "chief end of man" is to glorify the Almighty Dollar and enjoy just as many of him as he can possibly get hold of, at whatever sacrifice of comfort, health, or even life, on the part of himself or others. The creed of the age is, "I believe in Success," and its most agonizing soul-question, "Will it PAY?" 'Tis a glorious spirit, for in the results thereof doth the Greatness of our country largely consist.

Every now and then one of these belated dreamers so far forgets himself as to publicly attack some particularly striking and glorious instance of the application of this principle in the treatment of disease or the prevention of suffering. But he is promptly brought to a realizing sense of his condition, not so much by the promptitude with which he is regarded as "jealous" and "afraid of competition" by a large proportion of the public—for what else could he expect but to be judged by such people in the light of their own standards and motives—but by the utter incapacity of the great mass of intelligent, well-meaning people to recognize or appreciate the principle upon which he condemns it. "If a man has a good thing, hasn't he a right to make all he can out of it?" is their wondering cry. And that ends the discussion.

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THERE'S a world of philosophy contained in the brief, but pointed remarks of the Good Book, upon the casting of pearls. We would do well to act upon it in our controversy with fraud and charlatany of every description. Public denunciation of homœopathy, Christian Science, patent medicines or the Keeley Cure does rather less than no good at all. The laity will certainly fail to understand our motives, even if they do not impugn them. Our most philosophic and effective attitude is one of dignified silence, and our wisest course of action, one of masterly inactivity. Nature will argue for us with the irresistible logic of

events, if we will only give her time enough. . Let us be ever ready with our advice in these as in other professional matters—when it is asked for—but not allow ourselves to be drawn into a public, or scarcely even a private discussion on these subjects. The simple fact of the matter is that only a small minority of the community have either the scientific training to properly judge of the facts, or the moral capacity to appreciate the principles involved, and the rest can only learn by nature's object-lessons. If we but possess our souls in patience until a few of the silliest sheep have been shorn, the March winds will preach a powerful sermon to them; while the sight of their shivering bodies or stiffening forms will make a deeper and more lasting impression upon the ignorance and commercialism of the masses, than tons of argument or oceans of denunciation. As for the victims, fleecing is an important part of their education; they'll never learn sense in any other way. Moreover, there are occasions when it is an act of piety to allow the fool-killer to perform his function unmolested.

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SIX-EIGHTHS of the people who patronize quacks are undesirable as patients, for either mental, moral, or financial reasons, until they have learned to appreciate skillful, honorable treatment by personal experience of its opposite. "*Magna est veritas et prevalebit*," and she is quite capable of fighting her own battles and ours too, if we'll only give her a chance, and not handicap her with too much officious assistance.

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BESIDES all this, it's hardly in good taste to be always attacking and denouncing, however justly, those who, in the public eye at least, are our rivals. We are in the habit of practising a very considerable amount of reserve in regard to the faults or mistakes of the weaker brethren within our own ranks, and it would not be a bad idea to extend a little of it to those of our irregular opponents. Of course we cannot help being aware of our superiority to them, both scientifically and morally, but we shall convince the community of the fact much sooner by proving it in our lives and actions, than by proclaiming it on every occasion. We need have no fear of our silence being construed as a sign of weakness. On the contrary, most people instinctively distrust the

man who makes a practice of belittling or decrying others. It is one of the most encouraging signs of the times, that the profession, the land over, is considering or adopting this attitude of dignified silence and well-bred reticence, is already losing its classic reputation for "quarrelsomeness" and is becoming respected and appreciated by the community as never before.

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WE wish to especially commend to the attention of our readers the able and interesting paper of Prof. Davis upon "Water Supply," which will be found in another column. It is an exhaustive, but thoroughly readable presentation of a subject which is usually treated in such an alarmingly technical or wearisomely elaborate style, that in spite of its great importance, medical men are apt to fight shy of it. His description of the part played by bacteria in the great process of purification, is extremely interesting and suggestive. It would almost seem, as if the one thing needed to render our artificial systems equal to Nature's, was a domesticated variety of germs which would thrive in filters.

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## DEPARTMENT OF DISEASES OF ANIMALS.

S. STEWART, M. D., D. V. M., EDITOR.

(Secretary Iowa State Veterinary Society.)

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### VALUE OF SYSTEMATIC NOTE-TAKING.

The following notes of cases illustrate a form and method of keeping a clinical record of cases in veterinary practice, and if a sufficient margin is left on one side of the blank forms, the same can be kept in a temporary binder until sufficient numbers have been collected to constitute a permanent book, to be kept for future reference.

It is a serious hindrance to the development of veterinary medicine that all practitioners do not keep carefully prepared notes of cases occurring in their practices. The keeping of such notes makes the practitioner more careful about securing all possible details concerning his cases, more certain of his diagnosis, more definite in the administration of curative agents, and incidentally secures to him all his past experiences in a tangible form, upon which he may predicate an opinion or build a thesis.

To these notes many others from the same collection might be added, to illustrate the usefulness of the line of treatment given in them, for the man-

agement of pneumonia in the first stage. It should require the facts in many cases, to convince the recorder himself that he has a satisfactory plan of treatment for any given condition, before he is prepared to recommend it to another. How can a man convince himself, or be sure that he has followed one definite plan in a given condition at several different dates, if he does not make accurate records at the time the cases are treated.

It is said of Sir James Paget, that he has kept notes of *all* his cases. No man in all London has so large a store of personal experience at his command, or is so much sought after for consultation and opinion as he. Note-taking well repays the cost of time and energy required.

*Owner's Name*, H. & B. *Address*, Council Bluffs. *Case No.* 94. *Kind of Animal*, Horse. *Breed*, Grade Norman. *Age*, 5. *Sex*, M. *Color*, Grey. *Weight*, 1,200. *Disease commenced*, March 30, '91. *Treatment commenced*, March 31, '91. *Diagnosis*, Pneumonia. *Where Treated*, Owner's Barn. *Termination*, Recovery. *Charge for Operation*, ..... *Charge for Treatment*, .....

Day.	Hour.	Temperature.	Pulse.	Respiration.
1891 Mch. 31	11 A. M.	103	40	12
"	4 P. M.	105	44	14
"	7 P. M.			

This horse was kept in a small stable with seven others, one of which was recovering from a severe case of pneumonia. The weather was cold and windy. The stable was not freely ventilated. He commenced to cough on the 30th, but was given no special attention as he ate and drank as usual.

On the 31st his cough was more violent and frequent. He was examined and found to have marked mucous rales in both lungs, excretions normal, had eaten the morning rations.

At 4 P. M. he was examined again. The noon rations were only partly devoured, his head was dropped low when undisturbed, the rales increased. No dullness discoverable on percussion, the horse being quite fat. Being associated with a preceding case in the same stable, and presenting the same early symptoms the diagnosis was pneumonia in first stage.

The following dose was given :  
Antifebrin, dr. 6 ; F. E ; Jaborandi, oz. 1 ; Liquor Ammonia Acetatis,

					oz. 5; Water, oz. 12. He was warmly clothed, and all food removed.
" 8.30 P. M.					He soon began to perspire and by 8:30 P. M. the sweat ran off him in streams. He cooled out slowly and was given Liq. Ammon. Acet. oz. 4, at 11 P. M.
April 1.	7 A. M.	102	40	15	Was ready for morning meal and ate the little given him quite greedily. The last named drug was ordered in 2 oz. doses every 4 hours.
April 2.	5 P. M.	103	42	15	The cough was now greatly lessened in violence and frequency, and appetite vigorous, thirst moderate. A limited quantity of provender was allowed, and all the water desired.
	8 A. M.	103	46	14	
"	6 P. M.	102	36	12	Continued the Liq. Ammon. Acet. every 6 hours.
April 3.	8 A. M.	101½	36	10	Medicine discontinued.
April 4.	8 A. M.	100½	36	8	

*Owner's Name*, J. H. E. Clark. *Address*, Council Bluffs, Iowa. *Case No.* 101. *Kind of Animal*, Horse. *Breed*, Grade Clyde. *Age*, 6. *Sex*, F. *Color*, Bay. *Weight*, 1,400. *Disease commenced*, April 8, 1891. *Treatment commenced*, April 8, 1891. *Diagnosis*, Pneumonia. *Where treated*, Hospital. *Termination*, Recovery. *Charge for Operation*, \$.... *Charge for treatment*, \$14.

Day.	Hour.	Temperature.	Pulse.	Respiration.	
April 8.	9:30 A. M.	104	72	24	This mare refused to eat the morning rations, the first observed indication of illness. Examination at 9:30 A. M. revealed hurried respiration, slight cough, head hung low, pulse small and hard; excretions normal, shivering general from chill.
"	11 A. M.	106	90	32	Gave Antifebrin oz. 6; F. E. Jaborandi dr. 1; Liq. Ammon. Acet. oz. 6. Covered with woolen blankets.
"	1 P. M.				Repeated the dose, which was soon followed by free sweating.
"	8 P. M.	101½	50	14	Gave Liq. Am. Acet. oz. 4, every four hours, in half gallon of water as drink. No hay or grain allowed.

Day.	Hour.	Temperature.	Pulse.	Respiration.	
April 9.	7 A.M.	100½	42	11	Cough quite harassing.
"	1 P.M.	101	42	11	
"	5 P.M.	103	48	12	Repeated the first mentioned dose.
April 10.	7 A.M.	100½	42	10	Cough not so severe, a desire for food
"	1 P.M.	100½	42	10	is manifested and a very limited quantity
"	6 P.M.	100	40	9	is given. The Liq. Ammon. now given
					four times daily.
April 11.	7 P.M.	100	38	8	Hay and grain now given three times
					daily and Ammon. Chloride dr. 4, in the
					grain, continued until the cough ceased.

## OVARIOTOMY IN THE MARE.

BY WM. H. RIDGE, V. M. D., and SIMON J. J. HARGER, V. M. D.

The patient, a sorrel mare about 9 years old, was owned by a Philadelphia gentleman, from a colt to about 6 years of age, during which time she was gentle and quiet. On being harnessed she now began to show signs of kicking, switching the tail, urinating when touched by the traces, and squealing, but did not kick until when a 7-year-old. She was at this time served by a stallion, and during gestation and until the foal was weaned; the attendant could scarcely harness her; she kicked viciously, and œstrum was constant. Six months before being served by the stallion, I prescribed potass. brom. in ounce doses, until a pound was taken; after an interval of two weeks, the same was repeated without improvement. In October, owner number three, who had bought her at a public sale, could not work her. I ordered her to be served again by the stallion, which was done four times in one week, and so aggravated the symptoms that she could not be groomed. The owner brought her to me to have her spayed, and after explaining the risks to him, he decided to have the operation done. Not wishing to assume the whole responsibility, and not having the proper instruments, I asked Dr. Harger to assist me, which he kindly did, performing the operation himself.

The mare kicked so furiously when touched that it was impossible to do the operation standing up, or even in the stocks, and we had to cast her. We decided upon the vaginal operation, using an improvised vaginal dilator and chain ecraseur. The displacement of the abdominal viscera, because of the recumbent position, made the operation laborious, and the ovaries had to be cut off within the peritoneal cavity. The hemorrhage was in-

significant ; temperature never above  $101\ 1.5^{\circ}$  F ; appetite, perfectly normal ; discharged from the University Veterinary Hospital on the tenth day after the operation. She was perfectly quiet, could be thoroughly groomed, showed a disposition to lie down, and had a slight vaginal discharge, during the following two weeks, when the old symptoms returned, though not in the same degree.

At the present writing the animal is in perfect health, and gives but little trouble in harnessing to the cart, to which she has been working every day. She is improving daily, so as to lead us to believe that a cure will eventually be effected. The left ovary was enlarged and indurated, and the histological changes will be reported at a future date.—*Vet. Review, March.*

#### TUBERCULOSIS IN A GIRAFFE.

Dr. J. C. Meyers, Sr., of Cincinnati, gives the following account of tuberculosis in a male giraffe, which was kept in the Zoölogical Gardens of his city. The special interest in such reports is in the fact that nearly all domesticated and semi-domesticated animals, are subject to this disease, which is probably identical with tuberculosis in man, although the gross lesions produced by it in man and animals may differ in each class.

"The symptoms of the patient were actually such that I was obliged to coincide with the given diagnosis (tuberculosis).

"Prophylaxis, to protect, if possible, the female that is housed in the same enclosure, and that seems to be in good health, was immediately ordered.

"In order to be positive in regard to diagnosis, some of the sputum which "Abe" expectorated was taken, and given to a bacteriologist for examination, who discovered a great number of bacilli. Hope of recovery being impossible, an unfavorable prognosis was given.

"Death ensued on the night between the 20th and 21st insts., thirteen days after my first visit, and about four months after taking sick. Post-mortem examination, which was made twelve hours after death, substantiated the correctness of the diagnosis.

"Each lobe of the lungs presented a conglomeration of an almost solid mass, to which the tuberculous tumors, particularly those filled with yellowish, cheesy corruption, added the most material, increasing the circumference of the lungs greatly. Upon cutting through some portion of the lungs, a gritty sound was audible, presumably due to a deposition of lime. The liver in its parenchyma contained many small-sized tubercles. The spleen and other abdominal organs were exempt.

"A renewed search in another quantity of sputum, as also in the decomposed tubercles, revealed numerous bacilli, particularly in the mucus."—*Jour. Comp. Med.*

## AZOTURIA.

As early as 1874, Thomas communicated that azoturia was more prevalent in years yielding a good wine crop, as in these years especially potatoes, beets, etc., contained excessive per cents of saccharine matter. He attributes the disease to the superfluous sugar. In mild cases he prescribes wine; in more serious ones he gives, with good results, subcutaneous injections of pilocarpine, followed in the second day by intratracheal injections pot. iodide dr. jss. three times a day. "S." has observed azoturia in two oxen; the symptoms not differing from those in the horse. The attack lasted twenty-four hours and terminated in recovery. The oxen were taken from an over-warm stall very early in the morning and yoked to the plow. *Woch fur T. u. V.—Vel. Review.*

## NOTES.

THE Western and Eastern Iowa Veterinary Medical Associations are holding regular quarterly meetings. These meetings are well attended, and are proving to be very interesting and instructive to the membership. Similar associations ought to be organized in all parts of the state where five or more veterinarians are located, conveniently to a common center, that attendance may not cost too much time and money. The frequent interchange of ideas and experiences tends toward better and more successful practice.

DR. A. E. DERWENT has removed from Council Bluffs to Marshalltown, having purchased the practice of Dr. H. Shipley. Council Bluffs now has no graduate veterinary surgeon, and there is not one located within fifty miles of that city on Iowa soil. This is a good location for a live man.

## DEPARTMENT OF PLANT DISEASES AND BACTERIOLOGY.

L. H. PAMMEL, B. AGR., EDITOR.  
(Professor of Botany, Iowa Agricultural College.)

## MYCOSIS.

Mycosis is derived from the Greek and means fungus. The term is applied to higher parasitic fungi that may occur in any part of the body. The term is also used for the morbid effects of the disease. It is sometimes used in a different sense, as Zopf does, in connection with diseases of plants.

Contagious diseases in man and lower animals are not only caused by bacteria, but some of the higher fungi, especially some of the moulds, are responsible for diseases that are quite fatal to some animals.



Less than a quarter of a century ago it was hardly thought that higher fungi (plants like moulds, having no chlorophyll) could produce pathological changes in higher animals. It is true there was no longer any doubt that fungi like Corn Smut (*Ustilago Maydis*) Potato-rot (*Phytophthora infestans*) and Rust (*Uredineae*) affected seriously the plants they attacked, entailing a loss of millions of dollars every year. But the parasitic nature of these diseases was a mooted question, and even at the present time there are doubting individuals. One of the greatest opponents of this theory was Liebig. But the majority of thinking people have accepted the explanations of investigators in regard to the nature of these diseases. The parasitic nature of *Botrytis bassiana* (causing a disease known as Muscardine) and closely related to a fungus occurring on decayed vegetation, was also well recognized, as long ago as 1870. It was also known that "Frosted Flies" or the House-fly Fungus (*Empusa muscae*) which causes a halo of spores to appear in flies, on a pane of glass in the autumn, was due to a fungus. It was claimed and strongly championed by Naegeli that these higher fungi could not live in warm-blooded animals, because in their chemistry energetic changes occur in the body. Moreover, it was known that oxygen, which only occurred in limited quantities, or not at all, in the fluid portion of the blood, is very essential for fungi. It is a well established fact that fungi require oxygen to oxidize organic substances, and in this oxidation carbon dioxide is given off. Herpes, tinea tonsurans, favus, aphthæ, and other skin- and superficial affections were known to be caused by higher fungi. In these cases it was thought the superficial growth would enable the fungi to grow because of the contact with the air. Fungi were also known to affect internal organs, as in onycho-mycosis and myringo-mycosis. It was claimed that in these cases fungi were not the exciting causes, but simply the accompaniment of certain pathological conditions.

Wagner on several occasions observed the penetration of the fungus of aphthæ into blood vessels of the mouth and mucous membrane. Zenker observed in the brain of a child, who had been affected with aphthæ, multiple abscesses. In these abscesses he constantly found a mycelium (vegetative threads of a fungi) and what appeared to be the germinating spores of this fungus. But these observations were certainly not sufficient to establish a theory that higher fungi could cause pathological conditions in internal organs. Exact knowledge of the pathogenic properties of higher fungi and mycosis in higher animals, began with Grohó's investigations. He showed experimentally the contagious nature of these fungi. He injected mould spores into the blood vessels of rabbits and found that inoculated animals invariably died. He held that the death of experimental animals was due to the spores which entered the blood and tissues, germinated, and a fungus growth was the result.

The injection of a small quantity (0.8 ccm) of spores suspended in

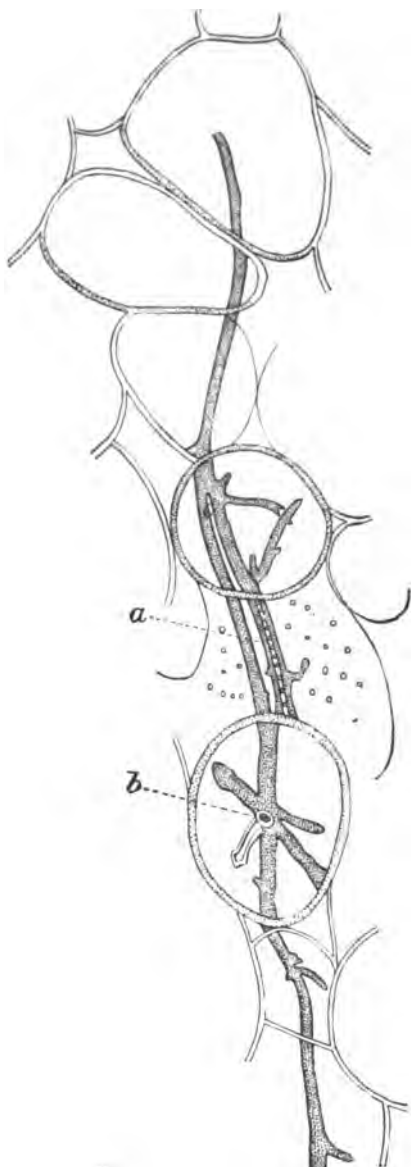


FIG. 1.

CORN SMUT. (*Ustilago Maydis*.)

FIG. 1. Threads of the fungus (*mycelium*) passing through and between the cells of the corn plant. FIG. 2. Spores in process of formation. The spiny spores are shown at FIG. 3; each spore is sending out a tube with small lateral bodies. FIG. 4. The lateral bodies budding in the manner of yeast. FIGS. 3 and 4 after Brefeld, 1 and 2 after Tulasne. [Seymour's paper: Department of Agriculture Report, 1887.]



FIG. 2.

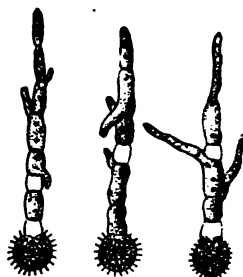


FIG. 3.

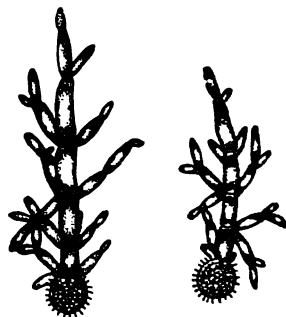


FIG. 4.

water to make a concentrated mixture, was sufficient to cause the death of small rabbits in forty-eight hours. Post mortem examinations showed small tubercular nodules in all organs. These consisted in part of unchanged tissues and a much-branched mycelium. Grohé's results were received unfavorably by such eminent pathologists as Cohnheim, whose work on general pathology appeared seven years later.

Grohé's results led Grawitz to investigate the question. He made more than 200 injections with the spores of *Aspergillus glaucus*, *Penicillium glaucum*, *Mucor mucedo*, *Rhizopus nigricans*, *Saccharomyces albicans* and *Botrytis bassiana*, all common fungi and most of them moulds of frequent occurrence on bread, dung, etc. Grawitz was able to show that the spores of these fungi were in part destroyed in the blood, while the remainder were thrown off through the kidneys. His results would seem to negative those of Grohé. Grawitz, however, undertook anew to investigate this question. It was claimed that these fungi would be unable to thrive in warm-blooded animals, because, ordinarily they vegetate on solid and more or less acid substances, varying from 10 to 20° C, while the blood of animals has a temperature of 39° C., and is alkaline in its reaction. He therefore attempted to accommodate these fungi by culture to the conditions found in the blood. By this method he succeeded in obtaining results somewhat similar to those of Grohé. He then formulated this theory, that moulds, as they ordinarily occur, cannot thrive in the blood of animals, but by culture they can inherit these properties.

This theory was quite widely accepted, and coming at a time when Buchner announced his discovery, that the harmless hay-bacillus, by culture could be changed into the virulent anthrax bacillus, seemed quite plausible. Baumgarten says, with truth, "The errors which led Grawitz to make this announcement were due to errors in his work." He did not make microscopic examinations of the material used to inoculate and the material found in diseased animals. If he had made a careful examination he would have found that death of animals was due to other species. It has likewise been shown that Buchner's theory of the changes of hay bacillus into anthrax bacillus was due to accidental contamination.

Gaffky showed how erroneous were the conclusions of Grawitz. These investigations have been supplemented by Baumgarten, Lichtheim, Kaufmann and others.

[To be continued.]

#### NOTES.

*The Bacteriological World and Modern Medicine*, published at Battle Creek, Michigan, now gives its readers translations of original articles from the French and German. The January and February number contains Dr. Raum's important contribution on the Morphology and Biology of the

Yeast Fungus, which appeared in *Zeitschrift für Hygiene*, Vol. X, No. 1. Two excellent plates accompany the translation. The February number contains a translation of Mag-Nonewicz's paper on diphtheria- and glanders-bacilli. The paper describes the development of these germs and the manner of staining the glanders-bacillus in sections. These translations will prove of great advantage to those who cannot consult the original.

PROF. MAX GRUBER on the methods of testing disinfectants, stated that investigations by Dr. Neudörfer and Yamané have shown that the usual method has allowed errors to creep in. Species vary greatly in this respect. One culture of *Staphylococcus pyogenes*, var. *aureus* was destroyed by 2.5 per cent solution of Pearson's creosote. In another culture it required an hour. If germs are treated with a disinfectant they must be brought under favorable conditions. Ordinary temperature of the room, and solid media are unfavorable for their growth. Germs that have been in a disinfecting solution, should be under observation for eight or ten days. It has been observed that Anthrax bacilli which were disinfected with a 1 per cent solution of corrosive sublimate, germinate occasionally after the seventh day. (Centralblatt Bakt. und Parasitenkunde, Vol. XI, p. 115.)

GRUSDEFF has made a study of the germs found in various parts of steamers; especially furniture, windows, etc. He obtained sixty species; several of these were pathogenic, as the anthrax bacillus.

GIGLIO claims to have found in the foetus taken from a woman who died from typhoid fever, the typhoid fever bacillus; at least, in cultures obtained from various organs, a bacillus was found that corresponded to this germ, but he was unable to see the germs in sections of foetus, though it occurred in the placenta. (Centralblatt l. c. p. 201.)

SAWISKY reaches the following conclusions in regard to the length of time that the bacilli of tuberculosis in sputum keep their vitality. First, that in ordinary rooms dried sputum retains its vitality for two and one-half months. Second, the virulence of such sputum loses its powers gradually, not suddenly. Third, there appears to be no difference whether the material is kept in the dark or sunlight; it loses its infectious nature equally. —(Centralblatt l. c. p. 153.)

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#### REVIEWS.

*Dr. George M. Sternberg's Report* (1) on the Etiology and Prevention of Yellow Fever is at hand. It is an important contribution to the bacteriology of the disease. It contains chapters on methods of collecting material, methods of research, general results of investigations made, examination of tissues preserved in alcohol, descriptions of micro-organisms which have been claimed to be the cause of yellow fever, and a

[1.] United States Marine Hospital Service. Published by authority of the Secretary of the Treasury, Washington, D. C., 1890.

description of micro-organisms isolated from yellow fever cadavers and the alvine discharges of the sick. Thirty-five bacilli, four streptococci, four micrococci and one torula are described. An excellent feature of the report are the fine heliotype plates made by the Heliotype Printing Co., Boston. The figures are all clear and distinct. There are also three excellent litho-caustic plates made by A. Hoehn & Co., Baltimore. Quite a number of the germs described are new.

Advancement seems to have been made in clearing up our knowledge about its bacteriology, but "the specific infectious agent in Yellow Fever has not been demonstrated." No particular micro-organism has constantly been found present. *Bacterium coli-commune* is most frequently found, but this also occurs in the intestine of healthy individuals. The germ is probably found in the intestinal canal. Some of the germs isolated by him are very pathogenic to rabbits, especially his *Bacillus X*. Certain of the bacteria found will not grow in the media that are ordinarily used by bacteriologists. "The experimental evidence recorded, and the facts just stated, seem to justify the recommendation that the dejecta of yellow fever patients should be regarded as infectious material, and that such material should never be thrown into privy vaults or upon the soil until it has been completely disinfected.

Dr. Edward O. Shakespear's Report (2) on Cholera in Europe and Asia is also at hand. This large quarto volume of 945 pages and 37 plates contains a great deal of interest to a bacteriologist. Information has been received from various sources, but this is of value to those who cannot consult the original papers. He has also done some original work. The volume contains figures and descriptions of the various germs, which at one time were mistaken for Koch's Comma Bacillus. The author says: "I am constrained to admit that, as far as my own inoculation experiments upon the lower animals are concerned, the proof is not absolutely conclusive that the comma bacillus of Koch is the specific cause of asiatic cholera." Yet it must be remembered that cultures rapidly attenuate, and that its virulence may be restored, and with the confirmatory results of Ferran and Cunningham on Guinea pig, these inoculation experiments in man in preventing cholera are, according to Dr. Shakespear, nearly sufficient evidence that the comma bacillus has an important etiological relation to cholera.

#### OBITUARY.

Most readers of this journal are perhaps not interested in the members of the botanical profession as a whole, but they will be sorry to learn of the death of Sereno Watson, who established himself as a physician many years ago at Quincy, Illinois. He practiced only two years. He was

[2.] Government Printing Office, Washington, D. C., 1890.

also a tutor in the State University of Iowa. Dr. Watson graduated from Yale in 1847, and received the doctor's degree from the University of New York several years later. Botany did not engage his attention till some years later, when he moved to Greensboro, Alabama, where he acted as secretary of the Planters' Insurance Company, of Greensboro, Alabama. His botanical publications date from King's Report of the Geological Exploration of the Fortieth Parallel.

About this time he became Dr. Gray's assistant at Cambridge. His contributions to North American Botany are numerous and important. With Prof. Brewer and others he published *The Botany of California*, two large volumes. His *Bibliographical Index to North American Botany*; shows a great deal of study and careful research. He has also published eighteen numbers of contributions to North American Botany and numerous other papers.

In North American Systematic Botany, Dr. Watson has had but a single peer, the late Prof. Gray. He was genial and kind, but somewhat difficult to approach. He was conservative in his views, too much so for some of the younger aspiring botanists. His health had been failing for some time and in 1891 he made a trip west to visit a brother in Kansas. His presence was greatly welcomed at the Indianapolis meeting of the American Association for the Advancement of Science.

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## ORIGINAL CONTRIBUTIONS.

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### A UNIQUE CALCULUS—SUPRA-PUBIC LITHOTOMY.

BY ED. E. DORR, M. D., *Des Moines.*

Jesse T., an American laborer, 21 years of age, was admitted to Cottage Hospital, March 17, 1892. He gave a history of stone in the bladder which was confirmed on examination, but it was not until after the operation that I got the correct history of the case, which was as follows:

About the middle of December, 1891, he, a chum, and two girls, spent a night together at Ottumwa. He had been up traveling for two nights previous, and was very sleepy. Some time during the night, but all unknown to him, a piece of *chewing-gum* was introduced into his urethra and worked its way into the bladder. Soon after this he noticed pain after urinating and in locomotion. He consulted Dr. Anderson who, after a course of medicine, sent him to the hospital.

An operation was advised and accepted. The parts were carefully prepared by shaving the pubes and applying bichloride compresses.

The operation was at 9:30 A. M., Sunday morning, March 20, Drs. Priestley, Smouse, Schooler and Anderson being present. About twenty ounces of warm boracic-acid solution were forced into the bladder and a

ligature applied around the penis. A Barnes dilator of the largest size was introduced into the rectum and distended with warm water. An incision three and one-half inches long was made in the median line extending to the pubic bone. The tissues were carefully divided until the bladder came into view. Hemorrhage very slight. Two China-silk threads were passed through the bladder-wall on either side of the median line and held by assistants, and an incision about one and one-half inches long made in the bladder-wall. The finger was introduced and every part of the bladder explored. The stone was easily located, but when the forceps were applied it gave way, and a teaspoon was used to extract it. It was fully one and one-half inches long and one-half inch thick, and one section was found to be mostly composed of gum, (of what make we were unable to determine) with a phosphatic incrustation of about one-sixteenth of an inch in thickness.

The bladder and wound were thoroughly irrigated with a bichloride solution of 1-2000. A soft catheter introduced and left in to drain the bladder. Ten stitches were taken through the muscular coats of the bladder-wall, leaving the mucous membrane free. The muscular tissue and skin were brought together with six catgut sutures, a drainage tube left in, and an iodoform dressing applied.

The operation lasted 45 minutes. Patient rallied nicely and the temperature remained normal until 12 P. M., when it went up to 101°. For six days the temperature ranged between 99° and 101.5°; suppuration was free, but no urinary leakage occurred, and the wound healed nicely.

The drainage tube, I believe to be unnecessary, when the bladder and surrounding parts are healthy and should be used only where purulent conditions exist.

The patient told me nothing of the foreign body, and had I used a lithotrite, I should have found myself in serious trouble. It would have been impossible to have either "crushed" the gum, for it was still soft and sticky, or disengaged the jaws of the instrument.

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### STATE ITEMS.

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WE are grieved to report the death of another of our ex-presidents, Dr. J. C. Hinsey, of Ottumwa, which occurred Saturday last, April 9th, after a long and painful illness.

Be sure and make a long, red-letter mark in your visiting-list opposite the dates of Wednesday, Thursday, and Friday, May 18th, 19th, and 20th, when the annual meeting of the Society occurs at Des Moines. Warn all "mothers-elect" that children that are inconsiderate enough to present themselves on either of these dates will run the risk of having to help themselves into the world. Tell your regular attendants that you are going to give yourselves—and them—a little breathing-space, about that time.

They will value your services all the more highly for being deprived of them occasionally, and will certainly not all die in your absence; on the contrary, some of them may possibly recover. The meeting promises to be the largest and most interesting in the history of the Society, and none can afford to miss it.

THE third session of the Medical Society of the Missouri Valley was held at Leavenworth, Kansas, March 17th, 18th, and 19th. A number of Iowa men appeared upon the program, and among the officers were Dr. Schooler, of Des Moines, Second Vice-President, and Drs Lacey and Thomas, of Council Bluffs, Treasurer and Secretary, respectively.

ON March 8th occurred the commencement of the College of Physicians and Surgeons of Keokuk. The attendance at the meeting of the Alumni Association in the afternoon was large, and the badges of that organization were very noticeable on the streets all day. Papers were read by Dr. Robert Stephenson, of Centerville, Iowa; Dr. D. W. Owens, of Horsman, Ill., and Dr. L. P. Walbridge, of Decatur, Ill. In the evening the graduating exercises were held at the Keokuk Opera House, which was filled to overflowing. Rev. Dr. J. C. Maple delivered the doctorate address, and the degrees were conferred by the President of the College, Hon. John E. Craig. The class was large and particularly fine-looking, including four ladies. After the benediction the alumni and faculty sat down to an elegant banquet at the Hotel Keokuk, and it was time for the early morning trains when the gathering dispersed. This association promises to be one of the most interesting societies in the Northwest, and the College is reported to be prospering as never before.

DR. J. J. BROWNSON has been appointed physician to St. Joseph's Hospital (Asbury).

THE commencement exercises of the Medical Department of the State University were held Wednesday, March 9th, in the midst of a howling blizzard. The doctorate address was delivered by Hon. Henry Sabin, and was a most interesting and suggestive oration upon the Future Possibilities of Medicine. Degrees were conferred by President Shaeffer upon twenty-five students, one of whom was a lady. The stage was beautifully decorated with flowers, and the sad "vacant chair," in the place of honor, was occupied by a portrait of the late revered Dean, Dr. Peck. The banquet was attended by some two hundred of the class and their friends, including the Faculty and Board of Regents, and was followed by dancing, which lasted until the half-grown hours of the morning. The year which has closed was a most satisfactory one, and the prospects are for an unusually large attendance next term.

THE "Spring Circuit" of Western State Medical Meetings is opened by Kansas, at Fort Scott, May 3d, followed by Nebraska, at Omaha, May 10th;



Indiana, at Indianapolis, May 14th; Missouri, at Peatle Spring, May 17th; Iowa at *Des Moines*, May 18th; Illinois, at Vandalia, May 21st, and closed by Minnesota, at St. Paul, June 15th. Four States hold their meetings on the same day, May 3: Kansas, Michigan (Flint), Ohio (Cincinnati), and Wisconsin (Milwaukee).

Do NOT forget the date of the meeting of the American Medical Association, which is held at Detroit, June 7-10. No better place could have been chosen, for Detroit is one of the prettiest, most interesting, and most hospitable cities on the continent, and the location alone would insure a thoroughly enjoyable session.

THE second annual commencement of the Keokuk Medical College was held March 9th. The address was delivered by Dr. S. W. Moorehead, and degrees conferred upon a class of fifty-seven by the President, Dr. Geo. F. Jenkins. The total number enrolled during the year was one hundred and sixty, and the Faculty of this young institution are naturally much gratified by its remarkable progress. The Alumni Association held its first meeting during the afternoon.

THE Mississippi Valley Medical Association has taken time by the forelock, and is already out with cards announcing that its next (eighteenth) annual session will be held at Cincinnati, Oct. 12-14, 1892.

WE regret that in our gratification over Dr. J. M. Emmert's recovery from atropia-poisoning we failed to mention in our last issue that he had been appointed on the State Board of Health, vice Dr. Llewellyn, resigned. Governor Boies couldn't have made a stronger or better appointment, or one which would be more thoroughly satisfactory to the profession of the State.

WE are pleased to chronicle the birth of another "infant industry" in the line of Iowa medical journalism. It is a lively nursling, christened *The Iowa Medical and Surgical Reporter*, edited and published by Dr. J. W. Overton, at Des Moines, the first number of which appeared early in March. The first number contains some interesting original articles, a well-filled editorial column, and a Department of Pharmacy. THE VIS MEDICATRIX cordially welcomes it to the medical arena.

THE most satisfactory year in the history of the Iowa College of Physicians and Surgeons of Des Moines was brought to a close by the Commencement exercises, held April 7th. The doctorate address by Professor Hazen, on "The Etiquette of the Profession," was clearly professional, and abounded in wholesome advice to the class. Degrees were conferred by Chancellor Carpenter, of Drake University, upon a class of nine students, two of the number being ladies. Mr. J. H. Stalford was the valedictorian of the class, and in choice language gave an earnest and able tribute to the science of medicine. After the exercises, the Faculty, alumni, and students

repaired to the Kirkwood, where a bountiful repast awaited them. Dr. Schooler, Dean of the Faculty, acted as toast-master, and succeeded in keeping the company in good spirits. Drs. Finlayson, Overton, Garton, Hatton, Pipino, and Scott furnished the oratory.

THE excellent announcement of our Annual Meeting, already issued by the Secretary, only contains a partial list of the papers promised. A number of other interesting ones are expected, and it is specially requested that all intending contributors shall send in their subjects and names to Dr. J. W. Cokenower *at least one week* before the date of the session, in order that they may be included in the final program.

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## THE MUSEUM.

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### HIGH LIFE IN THE ALPS.

Everybody knows mountain flowers are beautiful. As one rises up any minor height in the Alps or the Pyrenees, below snow-level, one notices at once the extraordinary brilliancy and richness of the blossoms one meets there. All nature is dressed in its brightest robes. Great belts of blue gentian hang like a zone on the mountain slopes; masses of yellow globe-flower star the upland pastures; nodding heads of soldanella lurk low among the rugged boulders by the glacier's side. No lowland blossoms have such vividness of coloring, or grow in such conspicuous patches. To strike the eye from afar, to attract and allure at a distance, is the great aim and end in life of the Alpine flora.

Now, why are Alpine plants so anxious to be seen of men and angels? Why do they flaunt their golden glories so openly before the world, instead of shrinking in modest reserve beneath their own green leaves, like the Puritan primrose and the retiring violet? The answer is, because of the extreme rarity of the mountain air. It's the barometer that does it.

Bees, one must remember, have heavy bodies and relatively small wings; in the rarefied air of mountain heights they can't manage to support themselves, in the most literal sense. Hence, their place in these high stations of the world is taken by the gay and airy butterflies, which have lighter bodies and a much bigger expanse of wing-area to buoy them up. In the valleys and plains the bee competes at an advantage with the butterflies for all the sweets of life; but in this broad sub-glacial belt on the mountain-sides, the butterflies in turn have things all their own way. They flit about like monarchs of all they survey, without a rival in the world to dispute their supremacy.

"For the bee, a long round of ceaseless toil; for me," says the gay butterfly, "a short life and a merry one." Mr. Harold Skimpole needed only

sunshine, a few grapes." The butterflies are of his kind. The mountain zone is for them a true ball-room; the flowers are light-rents laid out in the vestibule. Their real business in life is not to and lay by, but to coquette and display themselves and find fitting partners.

Now, plants are good shopkeepers; they lay themselves out strictly to attract their customers. Hence the character of the flowers on this beeless belt of mountain-side is entirely determined by the character of the butterfly fertilizers. Only those plants which laid themselves out from time immemorial to suit the butterflies, in other words, have succeeded in the long run in the struggle for existence. So the butterfly-plants of the butterfly-zone are all strictly adapted to butterfly tastes and butterfly fancies. They are, for the most part, individually large and brilliantly colored; they have lots of honey, often stored at the base of a deep and open bell, which the long proboscis of the insect can easily penetrate; and they habitually grow close together in broad belts or patches, so that the color of each reinforces and aids the color of the others. It is this culminative habit that accounts for the marked flower-bed or jam-tart character which everybody must have noticed in the high Alpine flora.—*Cornhill Magazine*.

#### "THE LOCUST AND THE FLY".

It would, no doubt, be difficult to convince one afflicted with myiasis that flesh-flies ("blue-bottles") are of any use in the economy of nature, or that they could possibly subserve human interests.

Yet Prof. Riley reports (*Seventh Annual Report of Useful and Injurious Insects of the State of Missouri*) that they are deadly enemies of the locust or grasshopper, which in myriads of myriads is now devastating portions of our "far western" country.

The professor quotes Mr. Bessy, of Ames, Iowa, who found larvæ of *Sarcophaga carinaria* in the abdomens of the pests. The author describes the examination of a locust that was scarcely able to move, and which was found to be literally eaten up, except the external case, by larvæ of the flesh-fly. The flies paste their eggs under the wings of the locust, and the larvæ, as soon as hatched, bore into the abdomen of the host. Here they feed in such manner as to allow the host to live long enough to give them nutriment, until they are ready to undergo that mysterious change which completes their cycle of existence. Thus, as Burns sings:

"Big bugs have little bugs  
Upon their backs to bite 'em,  
And little bugs have smaller bugs  
And so *ad infinitum*,"

and even the locust is in danger of having "flies on him."

## IS STERILIZING NECESSARY?

Dr. Freudenreich, after a series of experiments on the action of raw milk on bacteria, has come to the conclusion that it possesses remarkable germicidal properties. He claims that the bacillus of cholera in fresh cow's milk dies in an hour; the bacillus of typhoid fever in twenty-four hours, while other germs die at the end of varying periods. He further found that milk exposed to a temperature of 131° F. loses this germicidal property, as does also milk that is four or five days old.

These experiments will set the physicians to thinking very seriously on the advisability of sterilizing milk for infants' food, or for food of adults. We were just congratulating ourselves on the fact that a means of preventing the introduction of disease into the human body through milk, had been discovered in sterilization. According to Dr. Freudenreich, one might conclude, at first thought, that we were mistaken in our expectations and confidence, and that raw milk is, after all, preferable for human consumption.—*Bacteriological World*.

[These facts are of special interest, taken in consideration with the slight incidental drawback to the value of sterilized milk, discovered by Leeds and Hirst in their clinical experiments—that the babies starve on it. ]—ED.

## THE VALUE OF BANANA FLOUR.

There are many disorders of digestion, and many conditions of convalescence, in which it is desirable to employ starchy food that will be easily assimilated, and not undergo abnormal fermentation in the stomach, with production of flatulence, abnormal acidity and other disorders. The starchy foods heretofore obtainable in this country for this purpose have been all derived from tubers and cereals, and attempts are made to render them more assimilable by the addition of digestive ferments or by malting. In the banana, as in other fruits, however, natural fermentative processes occur which convert the greater portion of its starch into dextrin and glucose without artificial aid, and hence the banana tribe with their great development of fruit starch, not only furnish man in the tropics with an indispensable food, but admit of the preparation of flour and meal that possess intrinsic advantages as an article of invalid diet.

In British Guiana, the banana is employed especially as a nourishing food for young children and invalids. Many persons find that they cannot readily digest bananas, as we obtain them in this country, but this no doubt depends upon the fact that the fruit shipped to the United States is picked very green, and is often quite immature and irregularly ripened when eaten. Imperfectly-ripened bananas are composed chiefly of starch, but, as the natural ripening proceeds, the saccharine material is converted into a mucilaginous substance which in turn forms sugar. (Pavy.)

The flour, which is made by drying carefully-selected and well-ripened bananas, is, however, remarkably easy to digest, and highly nutritious.

Surgeon Parke, in his instructive and interesting account of his experience with the sick of the Emin Pasha relief expedition, refers to Mr. Stanley, who was in the midst of a severe attack of acute gastritis, as follows : "He eats porridge made with banana-flour and milk. It is very light and digestible, and has more flavor than arrow-root ; it is also very nutritious. We whites have good reason to know this fact now, as we have mostly lived on banana flour for the past two years."

It is certainly a decided gain to enlarge the list of starchy foods for feeble digestion by a fruit-flour which presents the following advantages : An agreeable taste ; a high percentage of nitrogen, dextrin, and glucose ; ready digestibility ; high nutritive value, and good keeping-powers.—THOMPSON in *Dietetic Gazette*.

### N<sub>2</sub>O—NOH.

ABERNETHY used to become greatly annoyed—as who of us has not?—by the long-winded and elaborate histories of their troubles and symptoms poured forth by some of his lady patients. One morning a lady was shown into his consultation-room who immediately began a most voluminous statement of her woes. After listening in silence for some ten minutes, he suddenly interrupted with, "How long do you think it will take you, madam, to complete your description of your case?" at the same time taking out his watch. The lady was too astonished to answer at once. "Do you suppose you could do it in half an hour?" She thought she probably could. "Well, then, madam, continue ; pray continue. I have an engagement down street, and will be back at the end of that period."

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ON another occasion, a lady—who might have heard of the former incident—came to consult him. Without a word, she quietly extended a badly-lacerated finger. After a careful inspection, he briefly inquired : "Cut?" "Bite," was the laconic reply. "Dog?" "Cat." "Yesterday?" "Day before." "Go home and poultice it ; most sensible woman I ever saw in my life." !

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"Doctor, what do you do when you have a bad cold?" "I cough, madam ; I cough."—*Exchange*.

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OUR patients are sometimes indeed "fearfully and wonderfully made," according to their own conceptions of themselves. The writer was recently in attendance upon an ancient negro who was suffering from senile hemiplegia. He was taken care of by his middle-aged son, an excellent nurse

but full of strange speculations and remarkable theories as to the cause of the old man's numerous "mis'ries." The attack had occurred in the garden during a thunder-storm, and Henry was firmly persuaded that it was a "lightning stroke," and wanted something given to "wuk de 'lectricity outen his sistim." In the course of the trouble, the old gentleman suffered for several days from frequent light attacks of syncope, which greatly alarmed his son, until he had convinced himself that they were merely due to the fact that "his gall stopped wukkin' " occasionally ; which it promptly ceased to do when,—at his diffident suggestion,—I prescribed something by which it was "stimulated an' kep' goin'." A week or so later he came into my office in a most jubilant frame of mind. "Well, Henry, how's your father this morning?" "Oh, he's a heap bettah, sah. He's jes' been talkin' all de time, de las' two free days, 'bout lakes, an' rivahs, an' baptizin's, an' sech, tell I wuz plum skeered he'd got *watah on de brain* (!) ; but he quit dat dis mawnin', and he's all right now, sah."

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#### PHYSIOLOGICAL LOGIC.

During an official tour in Banffshire, a few years ago, one of the Inspectors of the Registrar-General's Department, in conversing with a parish minister, referred to the large proportion of illegitimate births, and generally to the low moral condition of the district. "Oh, yes," the parson calmly replied ; "at most of the marriages in this quarter you can tell which is the bride from her appearance"! A friend of the Inspector's, to whom he repeated the minister's remark, promptly rejoined that it was an excellent illustration of the *a priori* argument!—*Seton's Budget of Anecdotes*.

### BOOKS AND PAMPHLETS RECEIVED.

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